Design Knowledge and Intellectual Property Rules:

An investigation into the relationship between design knowledge and intellectual property rules

by

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Abstract

Preliminary research showed that designers have a poor understanding how they acquire rights to the knowledge they generate during the design process. In addition, the preliminary research showed that because of their lack of understanding of how rights are acquired designers have problems in managing their rights during and after the design process. They are two main methods by which designers acquire rights to their work. In the informal method rights (copyright and unregistered design rights) are automatically allocated to design knowledge when it is recorded (drawings or prototypes). In the formal method rights are acquired by formally registering illustrations or pictures of the finished at the Patent Office. This study addresses the relationship between designers and intellectual property rules with the aim of proposing a model that explains or simplifies the different methods by which property rights are allocated to design knowledge during and after the design process.

The study was divided into four main parts: the literature review; design student survey; interview of key informants and development and testing of the proposed model. The literature review served as a background and framework to the study. The design student survey provided primary data on the knowledge needs and problems of young designers just prior to entering the employment market. Interviews with expert informants provided information on the knowledge needs and problems of practising designers. The analysis of data showed that designers have problems in understanding the formal and informal process of acquiring rights. In addition, they found the legal language surrounding informal and formal rights to be complex and difficult to understand. The researcher therefore focused on developing a model that integrated the key stages of the design process with the key stages of when informal and formal rights are allocated to design knowledge.

The proposed model consists of a comprehensive, three level model organised into three stages. The first and second stages of the model show how and when the different informal rights are allocated to design knowledge during the design process. The third stage of the model shows how and when design knowledge is allocated formal rights after the design process. The model was then tested soliciting the views of designers and experts on the validity and utility of the model. The model was considered by the respondents to be a valid and useful tool in improving the knowledge of designers about how informal and formal property rights are allocated to design knowledge during and after the design process.

Keywords: Intellectual property, rights, knowledge, design knowledge

Author Declaration

1 During the period of registered study in which this thesis was prepared the author has not been registered for any other academic award.

2 The material included in this thesis has not been submitted wholly or in part for any academic award or qualification other than that for which it has been submitted.

3 The programme of advanced study of which this thesis is part has consisted of:

i. Research and Design Methods Courses – Years 1 and 2
ii. Supervision tutorials
iii. Independent study
iv. Attendance at relevant research conferences

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Research Framework

1. Introduction

We now live in what is referred to as the knowledge economy (Quah 1999; Foray 2000, Hendry 1999). According to Chartrand (2002) in a knowledge-based economy there are four distinct kinds of knowledge that are considered important market commodities or economic resources: 1) know-what, 2) know-why, 3) know-how and 4) know-who. In the Knowledge-Based Economy (1996) published by the OECD[1] the authors argue that know-what: refers to factual knowledge that can be transferred as explicit information broken down into bits; the work of designers, doctors and lawyers falls into this category. Know-why: refers to scientific knowledge of the principles and laws of nature. This kind of explicit knowledge underlies technological development, product and process advances in most industries.

In addition, the authors note that: know-how and know-who are rooted in practical experience or social relations, which cannot easily be transferred through the formal channels of information. Know-how refers to skills or the capability to do something and is primarily knowledge that is hard to codify or transfer. It is knowledge that is developed and kept within the borders of personal relations and organisations. Know-who: involves information on who knows what and who knows who and its primary function is to create the formation of special social relationships which make it possible to gain access to experts in order to use their knowledge efficiently.

Intellectual property laws recognise that certain types of knowledge should be treated as if they were private property and therefore capable of being owned (Browell 1996). Through the allocation of patents and copyrights, knowledge that is considered to have a commercial value is therefore attributed private property rights in order to protect its application (Bainbridge 1999; Cornish 1999; Coleman 1994; Holyoak and Torremans 2001; Hurt and Schuchman 1966). In many organisations new ideas or knowledge are now considered the raw material, and a key determinant of success is based on the ability to transform ideas or knowledge into a commodity of value such as: a piece of software, a brand or a patent (White Paper on Competitiveness 1998).

1.1 Related Works

In response to the growing importance of intellectual property as economic resources there have been a number of studies on design and intellectual property rules in the United Kingdom. The majority of the related studies on design and intellectual property have focused mainly on identifying the problems designers have with intellectual property rules and how to promote the value of intellectual property rules to designers.

For example, Dickson, Coles and Woods (1997) conducted a study of 52 firms in the textile industry in the United Kingdom, Italy and the USA. The study was undertaken to identify the similarities and differences in managing copyright issues of the firms within the three different legal systems. Over the years the government has also produced a number of studies related to design protection. Similarly, the Creative Industries Task Force (**CITF**) set up by the Department of Trade and Industry in 1999, undertook pilot studies on the provision of information on intellectual property and licensing within the creative industries.

Woods, Coles and Dickson (1999) also undertook a study on; 'Copyright and Training for Textile Design Protection in the United Kingdom'. Research on property rights and design has also attracted attention from economists interested in the benefit and costs of the ownership of property rights, and the economic impact of design piracy. For example, Benghozi and Stangata's (2000) work focused on the expanding and world-wide phenomena of 'Market Piracy in Design-based industries'. The cultural economist, Chartrand (1996) has conducted a number of studies on the relationship between the creative sector and intellectual property from a global perspective in order to raise awareness of the role of intellectual property within the creative industries.

Within the design profession the main body of work on how designers have managed the ownership of rights has come from the research of design historians. The work of design historians ranges from the Renaissance to the Avant-garde designers, for example Clifford (1999) looked at the 'Concept of Invention, Identity and Imitation in the London and Provincial Metalworking Trades between 1750-1800'. In the United Kingdom, Vad Lane-Rowley (1997) conducted a study on the fashion and textile industry with the aim of providing information on the intellectual property rules that apply to the fashion and textile industry.

The Creative Industries Mapping Document (1998) sponsored by the Department of Culture, Media and Sport (DCMS) in 1998, also looked at the creative industries that have a potential for wealth and job creation through the generation and exploitation of intellectual property.

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[1] The Organisation for Economic Co-operation and Development

1.1.1 The Problems Designers have with Intellectual Property Rules

In the report on the Creative Industries by the Creative Industries Task Force (**CITF**) of 1999. they observed that producers of intellectual property are not always able to understand the concept, which is so important to protecting their investment of time and labour. In their view: an understanding of the value of intellectual property across all business and creative areas which rely upon its existence is seen as paramount to the achievement of improvements in respect of intellectual property. According to Vad Lane-Rowley (1997) in many cases 'the subject of intellectual property is found by designers or managers to be too complex, time consuming and written in quite inaccessible language'.

Similarly, Dickson et al (1997) noted that: unauthorised copying of work is managed by designers only when problems arise and there are no clear strategies on the management of intellectual property. The researchers also found that: "designers often criticised the information they gained from courses because it tends to focus on the designer's own personal responsibility not to copy other designs as opposed to what would happen if they discovered an infringement of one of their designs. As a result designers leave college poorly prepared to respond to any infringement". According to Chartrand (1996) the lack of knowledge amongst designers concerning the property rights that apply to them has resulted in the 'global, continental and national conglomerates' being the true beneficiaries of rights and royalties generated by the creative sector.

The importance of the related-works is that they helped in identifying some of the main reasons why designers have a poor record of understanding and managing the property rights that apply to them. First, designers view the interaction between design knowledge and intellectual property rules as too complex and time consuming. As a result they do not feel motivated to either seek information or manage their rights properly unless they have being victims of illegal copying. Second, design education is failing to provide young designers with adequate training or information on how to manage the rights allocated to their work. As a result, inexperienced designers are more vulnerable to unauthorised copying, open to accusations of illegal transfer of work and unable to control or determine the exchange value of rights attached to their work.

The main difference between this study and the other studies is that, it seeks to provide a model that explains or simplifies the complex relationship between design and intellectual property rules. In order to contribute to their understanding and management of the property rights that apply to them.

1.1.2 Models

Freidman (2003) notes that models are illustrations that are used in describing how something works by showing its elements in relationship to one another. According to Sloman (1991) 'models are simplified representations of reality that are used to either explain or predict a phenomena'. For instance, an astronomer constructs models of planetary movements in order to *explain* why particular planets are in the position they are and to *predict* their position at various times in the future.

Models are considered conceptual summaries of complex relationships that we observe in the real world. In other words, models represent the breakdown of complex realities into manageable units through the use of graphic abstractions, mathematical equations and taxonomies. For example social scientists[2] make use of models that can be applied to management decisions or provide a tool for the modification, planning, forecasting and management of social policies. Similarly, the main objective of the model developed during this study is to provide designers with a tool that they can apply to the management of design projects.

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[2] Maslow's model on the ' Hierarchy of needs'.

1.2 Aims and Objectives

The aims and objectives of this research are to investigate the reasons intellectual property rules affect design knowledge, and to identify the nature of this complex relationship. The knowledge acquired could then be used in the development of a model that explains or describes to designers the role of the property rights that regulate and protect their work.

Objectives

- to review relevant literature on knowledge, design knowledge, property and intellectual property rules in order to provide a background to the study.
- to identify prevailing model/s on design knowledge generated during the product development process that could be used as the basis of the model;
- to catalogue the knowledge of design students and their main areas of concerns prior to entering the employment market by use of a survey;
- to catalogue the opinions of key informants on the findings of the survey and concerns catalogued in the literature review by use of interviews;
- to develop and propose a model that explains the interaction between design knowledge and intellectual property based on the findings;
- to test and evaluate the validity of the proposed model using key informants.

1.3 Research Methodology

According to Archer (1995) research in general is a systematic inquiry whose goal is communicable knowledge. For example, a feminist perspective of research focuses on gender issues that relate to how women experience the world and mainly make use of qualitative research techniques such as surveys, interviews and case studies (Stanley and Wise 1993).

1.3.1 Research Methodologies

Denzin and Lincoln (2000) argue that prior to undertaking research studies it is important to identify what information will appropriately answer specific research questions and which strategies are the most effective for obtaining it. In the design of this study a number of research strategies normally used in design research were looked at and these included case study, ethnographic and action research methods.

1.3.1.1 Case study research method: Svengren (1995) notes the case study research method is a favoured method to study practices of design management[3] and often the research inquires include a concern for how to integrate design with other business functions. Similarly, Hinnells (1993) writes that in design-related research the case study method is used as a detailed analysis of some aspect of reality. As a result, case study research methods have also being used in order to provide an insight into the creative processes and the innovative product development methods used by individual designers (Roy 1993; Hinnells (1993). Case studies mainly make use of qualitative research techniques such as surveys, in-depth interviews and observational studies (Yin 1989). The case study research method was deemed as being less effective in providing a framework for the study as it would have required time consuming in-depth studies of a very small group of companies or individual designers.

1.3.1.2 Ethnographic studies: Recently ethnographic studies have also become popular within design research[4]. The main focus of ethnographic studies in design is to describe a culture or learn about what designers do; what designers know; and the things designers make and use (Spradley 1980; Button 2000).

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[3] Examples of case studies within design include work on Environmental Factors in products how to gather evidence by Hinnells (1993) and Case studies of creativity in innovative development by Roy (1993).

[4] Examples of ethnographic studies within design include work on Storytelling and the development of discourse in the engineering design process by Lloyd (2000) and Applying ethnography in the analysis and support of expertise in engineering design by Ball and Ormerod (2000)

According to Hammersley and Atkinson (1995) ethnographic research is an active process produced through selective observation and interpretation of what is seen; as a result it is shaped by its location, as well as the values and interests of both the researcher and respondents. Lloyd (2000) notes that because ethnography is characterised by detailed observation of social groupings it can be used to research the design process as a social activity. Ethnographic studies require the researcher to undertake extensive observational studies which were not possible in the context of this study.

1.3.1.3 Action research: Another strategy used within design research is action research which has the purpose of not only discovering facts about design but also of helping change certain conditions that are experienced as unsatisfactory. According to Allison (1998) action research is typically a social science research methodology, that is context centred and aimed at solving real life problems in context. Action research has its roots in clinical research methods and originates from Kurt Lewin's 'real life experiments' in the United States and the Tavistock Institute's treatment of war prisoners physiological injuries at the end of the 1940's (Svengren 1993). Overtime action research has also become associated with the social sciences, business management and community development research (Denzin and Lincoln 2000; Patton 1990; Silverman 1997).

According to Archer (1995) research in the field of design can be divided into three main areas of inquiry: research about practice; research through practice and research for the purposes of practice (See Table 1.1).

Table 1.1: The three main areas of inquiry within design: adapted from Archer (1995).

Research	Goal
about Practice	Includes studies on art or design history. The analyses and criticism of the output of art and design activities. Methodologies used in art and design. The role of art and design in relation to people and society as well as studies on the materials and processes used in various levels of art and design activities.
for Practice	Includes studies mainly concerned with contributing to other practitioner's activities.
through Practice	Includes studies concerned with devising or testing new information, ideas, forms or procedures through practical action. Practical research is directed towards the clarification or extension of understanding and knowledge. Studies through practice are mainly exploratory and are called action research (**AR**)

The aim of the study is to contribute to knowledge on the role of intellectual property within design practice by addressing the relationship between designers and the property rules that regulate the majority of their work. Its main focus was also on what designers know about the property rights that regulate and protect their work.

According to Denzin and Lincoln (2000) practical perspectives in action research are employed when the aim of the research is to educate actors or practitioners in ways that will help them understand the nature and consequences of their actions. They also note that research on practice adopts qualitative research methods and is more likely to make use of limited statistics. Denzin and Lincoln note that action research is inherently a multi-method approach and includes both qualitative and quantitative research methods. Since the main aim of the study was to provide designers with a model that explains or describes the complex intellectual property rules that apply to them, the researcher chose to adopt action research techniques for the study.

1.3.2 Issues of Reliability and Validity

Archer (1995) writes that because in action research the investigator is explicitly taking action in or on the real world in order to devise or shed light upon something. It is sometimes impossible to conduct the investigation on an objective basis. In addition, he notes that it is difficult and dangerous to generalise from action research findings because the findings only apply to the time, place, persons and circumstances in which the action took place.

Svengren (1993) argues that scepticism about the value of action research is based on the belief that science is about finding the 'objective truth' of different issues. Similarly, Allison (1998) notes that because action research is rooted in practice and sets out to address a specific problem in a specific situation, it does not exercise control over the variables to the same level as would be the case with experimental research. Denzin and Lincoln (2000) however argue that the core validity claim in action research centres on the workability of the actual social change generated by the research.

In their view the test is whether or not the actual solution to a problem solves the problem. With regards to generalisations they note that it becomes an active process of reflection about whether or not the previous knowledge makes sense in the new context . According to Bailey, Bemrose, Goddard, Tinply, Josely and Mackness (1995) since there are many ways in which a piece of research can be invalid researchers will never be able to claim that their research was valid. What researchers must do is to think of the possibilities for invalidity, try to avoid them and once the research is complete, investigate whether they have avoided them.

1.3.3 Rationale for Choice of Methods.

Archer (1995) argues that the difference between quantitative research methods and qualitative research methods is that the former seeks to explain and the latter to evaluate. Similarly, Bryman and Burgess (1994) note that social norms are complex and situational and people engage in a variety of forms of reasoning in order to produce even an apparently straight forward answer to a normative question. In their view qualitative and quantitative research both represent different levels of meaning.

For example, claims made on the basis of surveys, remain limited in scope because data represents only one facet of the way respondents view a problem. On the other hand, interviews are a flexible strategy of discovery or guided conversations that allows the researcher to elicit rich and detailed data from the respondent. This study was mainly an exploratory and descriptive study for which relevant variables had still to be identified (Denzin and Lincoln 2000; Guba and Lincoln 1981). A multi-method approach was therefore deemed the most appropriate for a number of reasons. Firstly, quantitative methods facilitated the measurement of the knowledge and opinions of a considerable number of design students on the key issues addressed in the research. Secondly, qualitative methods facilitated an in-depth understanding of the views and opinions of the key informants on the key issues addressed in the research.

1.4 Methods of Data Collection

Qualitative research has four main methods of gathering information and these methods include direct observation, in-depth interviewing, participating in the setting and analysing of documents and material culture. On the other hand, quantitative research methods rely on quasi-experimental methods, descriptive and inferential statistics that can include: the use of questionnaires, personality or attitudinal tests and laboratory experiments. For the purpose of the qualitative data collection methods utilised included the literature review and elite or expert interviews.

1.4.1 Literature review

According to Oliver (1997) researchers make use of documentary research for a number of reasons. These include the fact that: the data cannot sometimes be collected in other ways, a lot of time can be saved, a large amount of detailed data maybe available, data can help to develop a research idea and data can lend itself to varied types of analysis.

In the study the documentary research was used because it allowed access to a large amount of detailed data such as commentaries, reviews, journals, opinions, critiques, interpretations and other researchers' findings. Data from the documentary research was then used to provide a background to the full study.

1.4.2 Survey Research

Babbie (2001) argues that survey research like other models of observation in social research have both strength and weaknesses. The main strength of surveys in his view is that first, they are useful in describing the characteristics of a large population allow for economy of design. Second, they make large samples feasible, and are strong on reliability by presenting respondents with a standardised questionnaire that allows the elimination of unreliability in observations made by the researcher. Third, surveys also ensure flexibility in the number of questions that can be asked on a given topic.

According to Babbie (2001) one of the main weaknesses of surveys is that they can appear superficial and artificial in their coverage of complex issues because of the use of standardised questions. In addition, he also feels that another problem with surveys is that the use of standardised questions may not be appropriate for all the respondents. Due to logistical reasons, such as cost, time and ethical issues, it was not possible to carry out face-to-face interviews with a large number of young design graduates, or undertake observational studies on how they manage intellectual property related during the design process.

The researcher of this study opted to undertake a survey of young design graduates for a number of reasons:

1. the survey method made the selection of a large sample group feasible
2. the survey method offered the researcher a non-intrusive method of gathering data
3. the survey method facilitated the use of a standardised questionnaire

1.4.2.1 Survey Tools

The most common method of collecting data in survey research is through the use of standardised questionnaires. Questionnaires may be administered in three basic ways: through self-administered questionnaires, face-to-face interviews or telephone surveys (Babbie 2000; Joliffe 1986; Creswell 1994). Each of the different methods has its own strengths and weaknesses. Interview surveys achieve a higher rate of completion but can be intrusive. Telephone surveys are more efficient and cheaper than face-to-face surveys.

Self-administered questionnaires are considered to be cheaper and quicker than interview surveys. The main drawback of self-administered questionnaires is that unlike telephone surveys and face-to-face interviews they have a lower rate of completed forms. Self-administered questionnaires were used in the survey because they were considered the least intrusive; cost and time effective.

1.4.3 Interviews

In the study of institutionalised norms and statutes, interviewing respondents is considered the most efficient form of obtaining information. Specialised forms of interviewing include ethnographic, phenomenological, elite, focus group and child interviews (Marshall and Ross 1999; Frey and Oishi 1995). Ethnographic interviews seek to understand the world-view of the respondent. Phenomenological interviews focus on the respondents lived experiences and elite interviews focus on the respondent's expertise in areas relevant to the research.

Due to logistical and cost factors it was not possible to undertake a survey of practising designers on their views and opinions of the findings of the literature review and design student survey. A number of elite interviews were therefore undertaken with experts and organisations with specialist knowledge of working with designers on issues relating to design and intellectual property.

Marshall and Ross (1999) write that the advantage of elite or expert interviews is that valuable information can be gained from these participants who are more likely to be well informed because they are at home in the realm of ideas, policies and generalisations. They argue that elites respond well to inquiries about broad areas of content and to a high proportion of open-ended questions that allow them the freedom to use their knowledge and imagination. The disadvantage in their opinion is that in working with elite respondents the researcher must display competence by displaying a thorough knowledge of the topic or by projecting an accurate conceptualisation of the problem through shrewd questioning.

The relationship between respondent and researcher also depends on other factors such as an understanding of the language and culture of the respondents by the researcher, as well as his or her dress, demeanour and speech during the interview. In elite interviewing it is important to demonstrate expertise at three different levels, the individual, the institution and the issues of concern. For example, Oliver (1997) observes that key informants in elite interviews must possess: special knowledge and skills, experience of working in a particular organisation and willingness to provide detailed information.

1.4.3.1 Interview Structure

Interviews can be structured, semi-structured or unstructured. Structured interviews are used to collect standard information or test a hypothesis with questions being agreed in advance and are extensive rather than intensive. The structured interview aims at capturing precise data of a codable nature in order to explain behaviour within pre-established categories (Sudman and Bradburn 1982; Frey and Oishi 1995).

The disadvantage of structured interviews is that responses can be influenced by the wording of questions and do not take into account the respondent's social context and this might stimulate or retard responses (Sudman and Bradburn (1982). While structured interviews seek to explain, unstructured interviews are an attempt to understand the complex behaviour of members of society without imposing any priori categorisation that may limit the field of inquiry (Denzin and Lincoln 2000).

The main role of unstructured interviews is understanding the participants perspective of the phenomenon of interest and should unfold as the participants view it not as the researcher views it (Marshall and Ross 1999). Semi-structured interviews are used in order to hear what the informant has to say on a topic or area identified by the researcher. Semi-structured interviews are suitable for collecting data from individuals in that they allow the interviewer and informer to partly direct the conversation (Denzin and Lincoln 2000).

Unlike unstructured interviews, in semi-structured interviews the researcher will use prompts to impose order and structure in data to act as conversation cues. Semi-structured interviews allow the emphasis of the interview to be adjusted through the research whilst maintaining consistency of areas covered (Southwell 2000). This is important for research involving areas not often brought together, such as design and intellectual property issues. In the study semi-structured interviews were used in order to impose structure on interviews because of the exploratory nature of the study.

1.4.4 Use of Secondary Analysis

According to Babbie (2001) secondary analysis is a form of research in which the data collected and processed by one researcher are often re-analysed – often for a different purpose by another researcher. In his opinion the advantage of secondary analysis is that it is faster and cheaper than doing the original research and the researcher benefits from the professional input of other researchers. The limitation of secondary analysis is the recurrent question of validity. In his view there is no guarantee that one set of data will "be appropriate for your research interests".

Due to logistical, time and cost implications the secondary analysis offered the researcher an opportunity to have access to the opinions and views of key informants working within design-related industries.

1.5 Methods of Data Analysis

Qualitative research views inquiry as an interactive process between researcher and participants and relies on people's words and observable behaviour as the primary data (Marshall and Rossman 1999). According to Oliver (1997) surveys are used to measure:

- the extent to which an attitude, life style, or social custom is present in a population
- the development of trends in a population
- the characteristics of a particular population, e.g. those individuals in a single profession or type of employment

1.5.1 Qualitative Data

Respondents in qualitative research view the world in their own way; impose their own analysis and use their own words to express that analysis (Bryman and Burgess (1994). Similarly, Spradley (1980) notes that culture is knowledge people use to interpret, experience and generate behaviour. As a result the analysis of qualitative data requires the researcher to contextualise, make sense or give meaning to the raw data they acquire. The linking of data and breakdown into manageable bits is a choice made by the researcher. The interviews and comments from the participants were therefore analysed taking a grounded theory approach.

A theory according to Oliver (1997) is a general statement which links together two or more concepts or ideas, and which indicates how one concept affects the other. In his view the most appropriate way to generate a theory is to base it or 'ground' it in the data being studied Similarly, Strauss and Corbin (1990) note that in grounded theory analytical descriptions are developed on the basis of data obtained during the primary research mainly through the coding of work into descriptive or conceptual categories. Descriptive categories list the key ideas or themes in which the researcher is interested. Conceptual categories are the ideas or themes that will contribute to the construction of a theory.

According to Hammersley and Atkinson (1983) immersion into data allows the researcher to identify patterns, possibly surprising phenomena and also to become sensitive to inconsistencies such as the divergent views offered by different groups of individuals. This study was primarily about the cultural knowledge of designers in relation to intellectual property. Grounded theory was therefore considered the most appropriate choice for analysing data from the study. This was because it provided a flexible framework to sort out the ideas, issues and themes emerging from the raw data for analysis and interpretation.

1.5.2 Quantitative Data

Creswell (1994) notes that surveys provide a quantitative or numeric description of some fraction of the population. This data collection in tum enables a researcher to generalise findings from a sample of responses to a population. According to Oliver (1997) surveys data frequently consists of very large numbers of readings or responses and by simply looking at the raw data it is very difficult to identify trends; we need some means of summarising the raw data. Babbie (2001) argues that one method of summarising data, measuring associations between variables, and drawing inferences from samples to populations, is by using statistics.

There are two main types of statistical approaches that allows researchers to summarise raw data. The first is descriptive statistics and the second is inferential statistics. According to Oliver (1997) descriptive statistics are used to describe numerical data collected from surveys into manageable forms. Descriptive statistics make use of percentages and frequency distributions in the form of bar charts to describe, compare and make interrelations between data in a sample. Other methods of summarising data include mathematical procedures such as averages to identify the mean, mode or median in a given sample or standard deviation calculations to describe how widely spread the data is in a sample.

Babbie (2001) describes inferential statistics on the other hand as assisting researchers in drawing conclusions from their observations by comparing the data with other changes or variables. According to Oliver (1997) the main difference between descriptive and inferential statistics is that the former seeks to present an array of numerical data, and then manipulate and analyse it in various ways in order to provide a comprehensive a picture as possible. The latter attempts to explain data in terms of other changes or variables in order to estimate or predict future trends. As the research was primarily descriptive and exploratory rather than explanatory all the quantitative data was analysed using descriptive statistics.

1.6 Structure of Research

Spradley (1980) notes that apart from ethnographic research that tends to follow a circular pattern of investigation the majority of social science research tends to follow a linear pattern of investigation (see Appendix A for example). In keeping with other social science methodologies the researcher choose to follow a linear pattern of investigation divided into three stages rather than a circular pattern. The implementation of the research process followed a three tier linear pattern of investigation rather than a circular pattern mainly because it provided the researcher with a comprehensive framework for the key stages of the research process (see Figure 1.1).

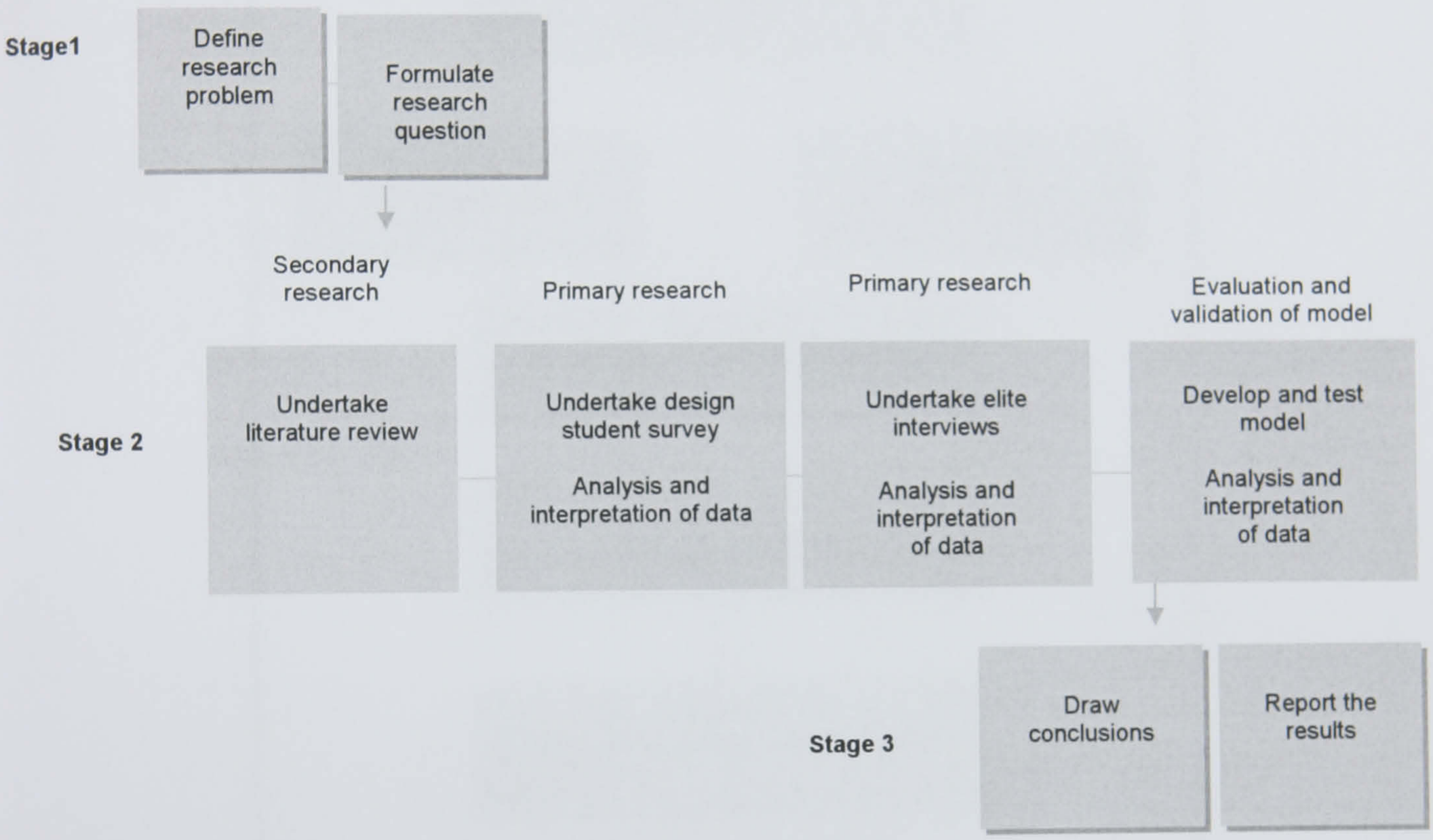

Figure 1.1: Sequence of Research: Adapted from Spradley 1980

1.7 Thesis Structure

The final structure of the thesis was divided into seven chapters which consisted of the introduction, the literature review, the student survey, the interviews, the development and testing of the model, conclusions and general discussions plus the summary and recommendations (See Figure 1.2)

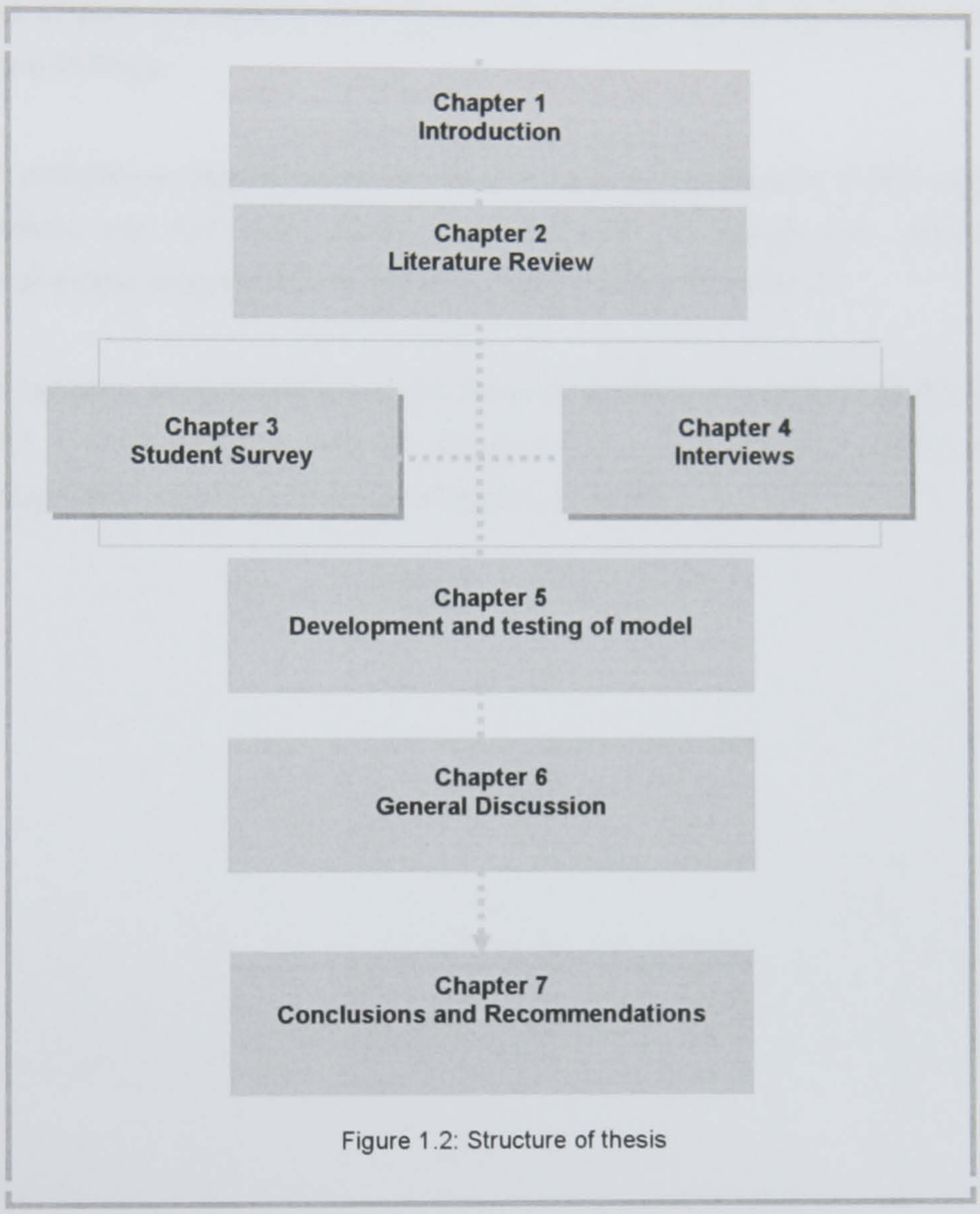

Figure 1.2: Structure of thesis

Chapter 1: provides a description of the aims and objectives of the study, the conceptual framework and methodological issues that determined the methods used to collect and analyse data.

Chapter 2: is composed of the literature review. The review is divided into six main sections that include; the introduction, a definition of property, knowledge, design knowledge. It also includes the process or methods by which design knowledge is allocated rights and the current management of intellectual property by designers.

Chapter 3: provides a description of the survey of the design students and is divided into three main parts: an introduction to the aims and objectives of the survey, methodology used, analysis and interpretation of data plus the findings.

Chapter 4: provides a description of the interviews undertaken with the legal experts and trade-related organisations primarily concerned with providing assistance, as well as advice on property rights to practising designers. The chapter is divided into three main parts: an introduction to aims and objectives, the research methodology, analysis and interpretation of data plus the findings.

Chapter 5: provides a description of the development and evaluation of the proposed model and is divided into four main parts. These include the introduction, development and evaluation of model analysis and interpretation of data plus the findings.

Chapter 6: includes an examination of the research process, an analysis of the links between chapters 2,3, 4 and 5 plus a general discussion. Chapter 7 is a summary of the main research findings followed by recommendations for future research.

Secondary and Primary Research

2. Literature Review

The literature review made use of existing data collected mainly from academic and specialist libraries, as well as government departments and research centres for any statistical data. The Internet was also used for downloading information that was not available either in the academic or specialist libraries. Most of the texts were read in order to gain a general overview of the information and to find out if it might be useful for the research. Any relevant or important information was then recorded in notebooks with details of the author, date, place, title, name of publisher and page number kept on index cards.

2.1 Introduction

The aim of the literature review was to identify any relevant literature on knowledge, design knowledge, property and intellectual property rules. This was in order to provide; a background to the study and identify any suitable models on design knowledge that could be used in the development of a new model on the interaction between design and the intellectual property rules that apply to it.

The first stage of the literature review was a search on texts concerning intellectual property rules. The purpose was to understand the functions of intellectual property rules in order to identify why they play such an important role in the exchange and transfer of design knowledge. The first stage of the review showed that the key functions of intellectual property rules were to regulate and protect the ownership of rights relating to knowledge. In addition, the three main communities they affect include designers, producers and the public domain. As a result of the key functions identified in the first stage of the literature review the literature review was divided into six main sections: the introduction, a definition of property, knowledge, and design knowledge. It also includes the process or methods by which design knowledge is allocated rights and the current management of intellectual property by designers (see Figure 2.1).

Section 1. the introduction provided a background to the study and included a short summary on intellectual property and its communities

Section 3. Design knowledge: examined the definition of design knowledge

Section 5. Examined the allocation of property rights to design knowledge

Section 2. Knowledge: examines the definition of knowledge.

Section 4. Property: examined the definition of property

Section 6. Management of Rights: examined how designers currently manage their property rights

Figure 2.1: Overall structure of the Literature Review

2.1.1 Intellectual Property Laws

In the United Kingdom intellectual property laws where introduced in order to resolve specific commercial problems created by new technology and were recognised as instruments of trade (Scott 1998; Scott 2000; Rose 1998; Benhamou 1991). The reason for this is that the introduction of new technologies according to Munzer (1990) contributes to the 'creation of new forms of enterprises which require the splitting or fractionating of the ordinary conception of property' (See Table 2.1).

Table 2.1:Evolution of Intellectual Property Rights from 1529-2001 in the United Kingdom[5]

Date	Act	Privilege	Right	Reason
1529	Copyright Act by Henry V11	✔		Introduction of print technology. Used to control and censor knowledge within the public domain
1642	Statute of Monopolies/ Patents	✔		Used to encourage the distribution of technical knowledge
1709	The Statute of Anne /Copyrights		✔	Used to encourage the spread of literacy within society
1787	Designing and Printing of Linens Act		✔	Used to encourage the distribution of artistic and design knowledge
1839	Copyright of Designs Act		✔	Growth of the industrial sector/ Formal registration for designs control over form rather than copy
1842	Design Act		✔	Consolidated earlier Design Acts and designs divided into classes
1851	Protection of Inventions Act/ Patents		✔	Used to restrict the distribution of technical knowledge/ amended 1852/ 1883/ 1907/ 1977
1862	Fine Arts Copyright Act		✔	Introduction of photographic technology
1875	The Trade Marks Registration Act		✔	Used to control markets in consumer goods / amended 1883/1905/1938/ 1994
1883	Designs, Patents and Trademarks Act		✔	Consolidated design, patents and trademarks laws into one Act.
1911	The Copyright Act		✔	Used to protect and promote the nascent Art and Craft Movement / audio-visual Industries
1949	Registered Design Act		✔	Separation of design rights from patents and abolition of the classification system
1956	Copyright Act		✔	Special copyright protection for the jewellery industry of a limited nature for registerable designs
1988	The Copyright, Designs and Patents Act		✔	Amended 1949 Registered Design Act with the introduction of copyright for mass manufactured products
2001	Registered Community Design Rights		✔	Harmonisation of European legislation of Registered Designs in response to the globalisation of trade

[5] The United Kingdom was used as the sole example because it is the country from which most of the laws on intellectual property originated.

Table 2.1, demonstrates how the evolution of intellectual property with the United Kingdom was mainly determined by the introduction of new technology. For example, until the Industrial Revolution the transfer and exchange of knowledge was regulated by copyright and patents which were considered privileges rather than rights, and were non-transferable.

The introduction of print and textile technology however allowed for the rapid reproduction of information and consumer products. In order to control the reproduction and representation of information and consumer goods copyrights and patents came to be considered as rights rather than privileges. In other words the same principles governing what can be termed as real property such as land and buildings came to be applied to knowledge. In so doing English law not only expanded what could be claimed as property, it also created a flexible concept of personal property. According to Knobler (1971) within a society at least three communities are affected by intellectual property rules. These communities include; the stakeholders who produce and distribute the new knowledge such as Microsoft or Disney, individual generators of new knowledge such as designers and inventors, and the public that seeks access to the created knowledge.

2.1.1.1 Producers and Distributors of Knowledge

The main producers and distributors of knowledge are any companies that depend on knowledge as their main raw material such as software, pharmaceutical, banking, engineering, media, entertainment, publishing, audio-visual, print and graphic communication, photo imaging, and design industries. Innovation in these companies can assume many forms, including incremental improvements to existing products, application of new technology to new markets, and the use of new technology to serve existing markets (OECD 1996; Bucciarelli 2003; Kay 1999).

During the industrial revolution the idea of imitation was central not only to the practise of art, but also a crucial stimulus to design and consumption (Clifford 1999; De Marchi and Goodwin 1999; Duncan 1995; Durie 1993; North and Thomas 1973). Innovation through imitation leads to what economists refer to as free-renters. In other words people who make use of innovative knowledge without incurring the cost of the work that went into both the product development and manufacture of the original product. The purpose of property rights in innovative knowledge is to act as a reward for the time, investment and labour that organisations spend in creating new knowledge (Marx 1978; Macpherson 1964). Property rights therefore embody the power that organisations such as Microsoft and Disney have over which of their products can be paid for and are freely available in the public domain.

2.1.1.2 Individual Generators of Knowledge

The Standard Occupational Classification (**SOC**)[6] describes designers as: workers who use visual, audio, multimedia and other techniques to convey information through sketches, drawings, specifications or models. In the SOC, design is classified under two sub units: graphic design (3421) and product, clothing and related designers (3422). The tasks of group 3422 are listed as follows: liasing with clients on the development of design brief, market research to determine trends; preparation of sketches, design, patterns or prototypes; submission for approval to management, client or sales department; and overseeing production of sample product.

They are two main reasons why intellectual property rules affect designers. The first reason is because of the nature of design knowledge. According to Bengohzi and Stangata (2000) design knowledge, unless it is hidden or kept as a trade secret is what economists refer to as a public or non-excludable good. Unlike cars or houses that can be locked or land that can be enclosed by use of walls or fences. Design knowledge once it enters the public domain is like art in a museum or radio waves you cannot control its consumption. As a result the higher its intellectual content and symbolic value is the more likely that it will be illegally copied or re-produced. In order to protect against the illegal distribution of design knowledge within the public domain, the exchange and transfer of design knowledge is regulated and protected by intellectual property rules.

Secondly, property rights allocated to design knowledge are based on the idea that they are the protection of labour or work, which in turn is a protection of individual rights. For example, Lord Devlin in Ladbrooke (Football) Ltd Vs William Hill (Football) Ltd (1964) notes that in copyright law: "the laws do not impinge on freedom of trade: they protect property. In other words free trade does not require that one man should be allowed to appropriate without payment the fruits of another's labour, whether they are tangible or intangible".

According to Laddie (1996) the production of mental labour is property in a fuller sense than that of manual labour, because the worker exclusively created what can be viewed as its value. As a consequence designers wishing to benefit financially from their own work have the onus or burden of policing the property rights allocated to it once it enters the public domain.

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[6] based on skill level and knowledge content complied by the National Statistic Office (2002)

2.1.1.3 The Public Domain

Protected knowledge plays an important role within the public domain because it is viewed as a reward for making public, vital sources of new information that would otherwise remain a trade secret or hidden if it could not be exchanged for a value (See Figure 2.2).

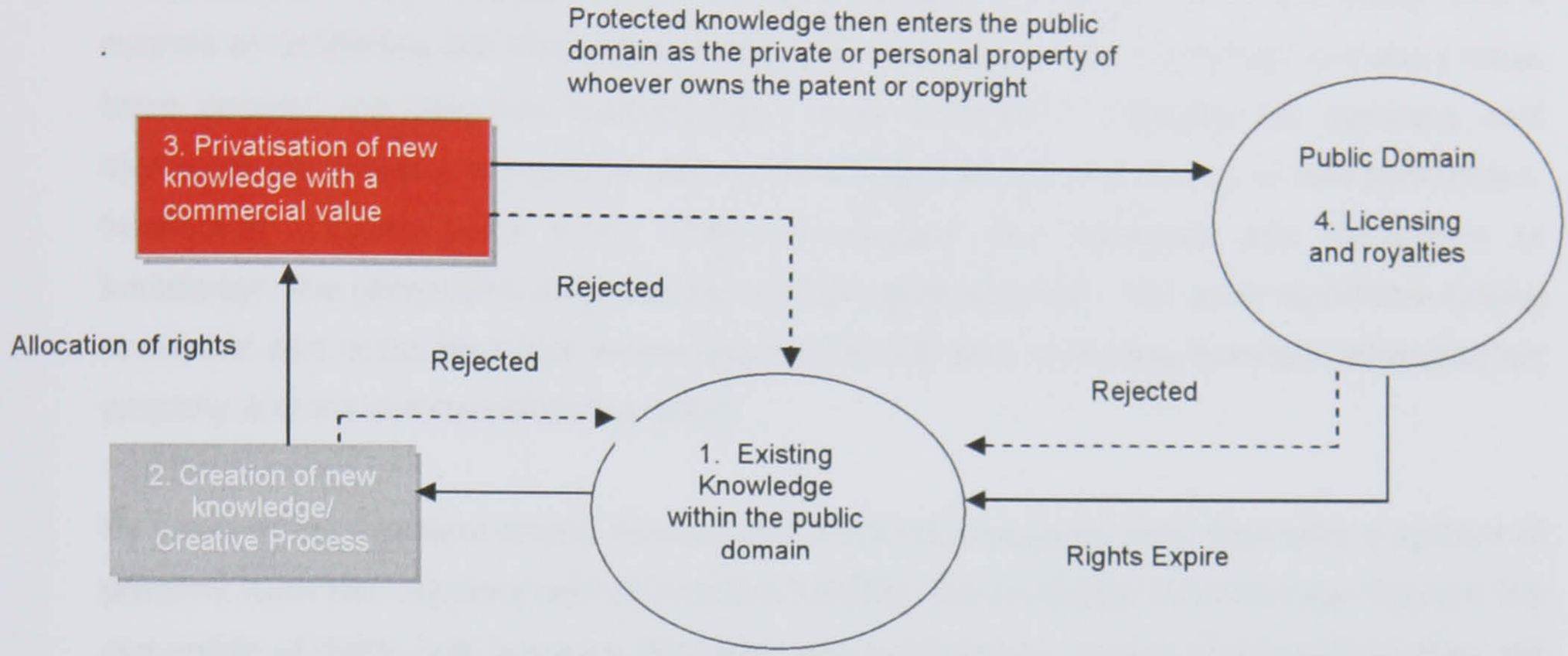

Figure 2.2: The Property Cycle of Knowledge : Diagram presented at the First International Conference on Textile Design and Engineering held at Heriot-Watt University by C Mwendapole (2003)

Figure 2.2, is an illustration of the functions of intellectual property within society. In the first part new knowledge is generated from existing knowledge that is usually obtained from the general knowledge within the public domain. The new knowledge is then allocated property rights and it enters the public domain as private or personal property. Once the rights expire the privately owned knowledge then reverts to public ownership. Within capitalist societies private or personalised intellectual property can be both beneficial and harmful due to the fact that it represents both a source of wealth and individual liberty. The liberty function is based on the idea that through the ownership of property rights an individual can create a private space in which the individual can exclude others.

The wealth factor is the right to capital as the individual owner can chose to assign or transfer both the new information and all or part of its property rights for use to a third party for a value. The financial implications surrounding private or personalised knowledge in turn reduces public access to knowledge creating a constant tension amongst the three communities (May 2001; Marshall 1950). This means that intellectual property rules have a dual function; they protect private knowledge and at the same time seek to ensure the free circulation of knowledge that has no property implications within the public domain. In copyright law for example under the doctrine of 'Fair Use' it is admissible to make copies of work under certain conditions without any cost or legal implications.

2.1.2 Section Summary

New technology encourages the creative use of knowledge, the higher the intellectual and symbolic content of knowledge however the more likely it will be illegally reproduced. Intellectual property rules are therefore seen as a method of rewarding creativity, encouraging the publication of knowledge that is considered useful to society and at the same time a method of controlling the illegal use of published knowledge. In a knowledge economy ideas have become the new raw material as a result innovation strategies are replacing cost strategies which leads to a greater use of knowledge workers as a source of new information. Intellectual property rules affect three communities: the producers and distributors of knowledge, the generators of knowledge and the general public. The most significant finding in the first part of the literature review was the identification of the key functions of intellectual property and the communities they affect.

Part one of the literature review showed that intellectual property laws represent a system of property rules that regulate and protect the transfer and exchange of knowledge through the ownership of rights and, because designers are considered a source of knowledge, they are part of this system. Part one therefore contributed to providing a useful background for the study because it identified the key factors that contribute to the relationship between design and intellectual property rules: knowledge, property and rights.

2.2 Knowledge

Part one of the literature review showed that protection and regulation of knowledge were the key factors in the creation of intellectual property laws. This part of the literature review therefore seeks to identify why knowledge is protected by intellectual property rules.

2.2.1 Introduction

Knowledge is perceived as the state of knowing which can be either explicit or tacit (Machlup 1980). Human knowledge is considered extra-somatic knowledge that is knowledge, that can be transmitted to others (Sagan 1977). Human knowledge is transferred through speech, visual images, paintings, writing, sound and photographs. For example, according to Jean (1998) speech began 60,000 years ago, visual images 40,000 years ago and writing 4,000 years ago.

Chartrand (1995) argues that in developed countries knowledge is considered a commercial commodity, created and owned by the individual. Chartrand (2000) lists the following as the three primary yet interactive domains of human knowledge:

1) the Natural Sciences and Engineering (NSE)[7]
2) the Social Sciences and Humanities (SSH)[8]
3) the Arts[9].

Curry (1997) makes the distinction between practical knowledge and imaginary knowledge. Practical knowledge he argues is applied to the production of technical commodities, and imaginary knowledge to the production of commodities in which the informational content is autonomous from its material form. Examples of a commodity based on practical knowledge include objects that have a utility such as vacuum cleaners or a cup. Examples of imaginary knowledge include the contents of a film, book or computer software.

May (2001) however argues that knowledge is a very difficult concept to define and classify and words such as data, information and knowledge are often used loosely to describe the same phenomena. Nonaka and Takeuchi (1995), note that knowledge can be tacit or explicit. In their view tacit knowledge is personal, context specific and therefore hard to formalise, whereas explicit knowledge refers to knowledge which is transmittable in a formal and systematic language.

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[7] Knowledge-based technological changes occur with the provision of new goods, services and improved production processes.
[8] Knowledge-based technological changes occur with the provision of improved management methods and practices.
[9] Knowledge-based technological changes occur with the provision of new aesthetics, better design, more attractive, creative advertising, and marketed goods and services.

2.2.1.1 Tacit Knowledge

Tacit knowledge is considered the know-how or know-who of knowledge. Tacit knowledge is silent knowledge in that it cannot be prescribed. This type of knowledge is transferred through practical application and is passed through experience common to art and craft guilds, which limits its diffusion to others.

Davenport and Prusak (1999) note that tacit knowledge is defined as knowledge acquired through: experience, knowledge of a technology; language or market and is much more difficult to codify and transfer. Tacit knowledge is subjective knowledge that is knowledge, which an individual possesses gained from conscious experience or their beliefs and opinions (Popper 1976).

2.2.1.2 Explicit Knowledge

Explicit knowledge is considered know-what and know-why components of knowledge.
Explicit knowledge is knowledge, which can be recorded in order for it to be transmitted in a formal and systematic language. Mankind has made use of different methods for expressing and communicating human experience through cultural products. The ability to interpret information, to convey knowledge and the understanding, which can be derived from it, is therefore dependent on its association with existing or related knowledge (Di Salvo 2002; Rodgers and Clarkson 1998; Moykr 1992; Veblen 1964). For example, according to Jean (1998) long before writing was invented figurative and non-figurative symbols were used in pictorial systems of communication.

Similarly, Chartrand (2003) argues that explicit knowledge is stored or packaged knowledge that is knowledge, which can be coded into a system of signals or symbols in order to communicate information. For example, the design grid used in technical drawings began as a religious symbol and with the rise of natural sciences in the seventeenth century became an important element in the presentation of information (Knobler 1971; Munroe 1970; Dewey 1969).

2.2.2 The Transfer and Exchange of Tacit and Explicit Knowledge

Curry (1997) suggests whereas information sharing is minimal in societies that communicate mainly through speech or experience, it increases vastly in a capitalist context because of the ability to record and reproduce tacit knowledge into or onto some material form. It is argued in an OECD publication on the Knowledge-Based Economy (1996) that it is now recognised that the linear model of innovation has been replaced by the recognition that ideas for innovation can stem from many sources (See Figure 2.3).

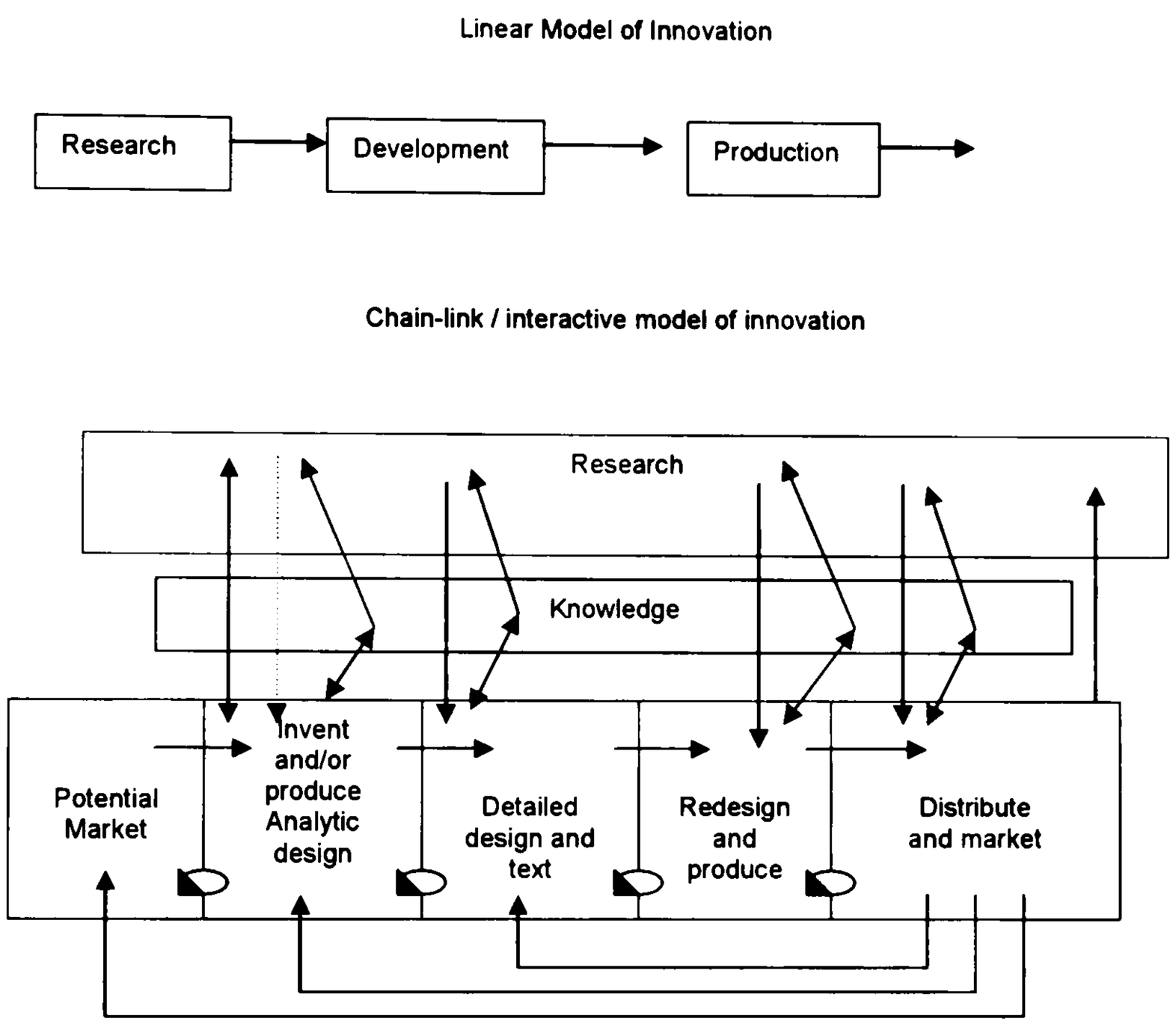

Figure 2.3: An Overview of Innovation from: Adapted from the OECD publication on The Knowledge-Based Economy (1996)

In the publication the OECD notes that in the knowledge economy innovation is driven by the interaction of users and producers in the exchange of both explicit and tacit knowledge. This means that in a knowledge economy designers will increasingly be required to transform tacit knowledge into explicit knowledge in order to interact with others through computer and communication networks.

2.3 Design Knowledge

Design knowledge has its origins in ancient Greece. The ancient Greeks, used 'techne' from which we derive the word 'technology' or 'technique' to denote a skill or craft, not merely as a manual skill but a branch of knowledge, a form of practical science or reasoned art (Osborne 1968).

2.3.1 Defining Design Knowledge

The introduction has shown that design knowledge is key to the relationship between design and intellectual property rules. Design knowledge[10] represents the two most important characteristics of human behaviour, which are expression and communication. Expression is considered a personal process and communication cultural (Jean 1998; Dewey 1969).

Communication is a social process that requires information to be expressed in a format which others can see and understand. Jakobson and Halle (1956) argue that all communication requires an addresser and addressee and there must be a contact which mediates this communication which can be visual, oral, or electronic. Similarly, designers articulate and transform tacit knowledge into explicit knowledge which the receiver with appropriate training and experience can 'decode'.

For example, explicit design knowledge, such as technical blueprints are considered easier to understand because they represent a whole background of contextual knowledge and practices (Stiglitz 1999; Paulus 1989; Pugh 1991). The ability of designers to transform tacit knowledge into explicit knowledge is the main reason why design knowledge is regulated and protected by intellectual property rules.

Research on the role of knowledge in the design process has tended to focus on skills training and the qualifications needed to compete in a knowledge economy (Schmidt-Braul 1999) or the role of creativity in the product development process (Roy, Riedel and Potter 1998; Petroski 1996). For the purposes of this study a number of studies were examined in order to identify suitable models on the tacit and explicit functions of design knowledge amongst these studies was work by Nonaka and Takeuchi (1995), Davenport and Prusak (1999), Teixeira (1999) and Rodgers and Clarkson (1998). Out of these studies the models most suited to this study were those developed by Teixeira (1999) and Rodgers and Clarkson (1998). The main reason for choosing Teixeira and Rodgers and Clarkson's models is that they are currently the only models that seem to focus specifically on describing the main characteristics of explicit design knowledge that is used and generated during the design process.

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[10] Includes architecture, graphics, fashion, product and interior design.

2.3.2 Model 1

Teixeira (1999) writes that design knowledge is a fluid mix of experience, values, and contextual information about the production and use of products, and the combination of structured methods and intuition (See Figure 2.4).

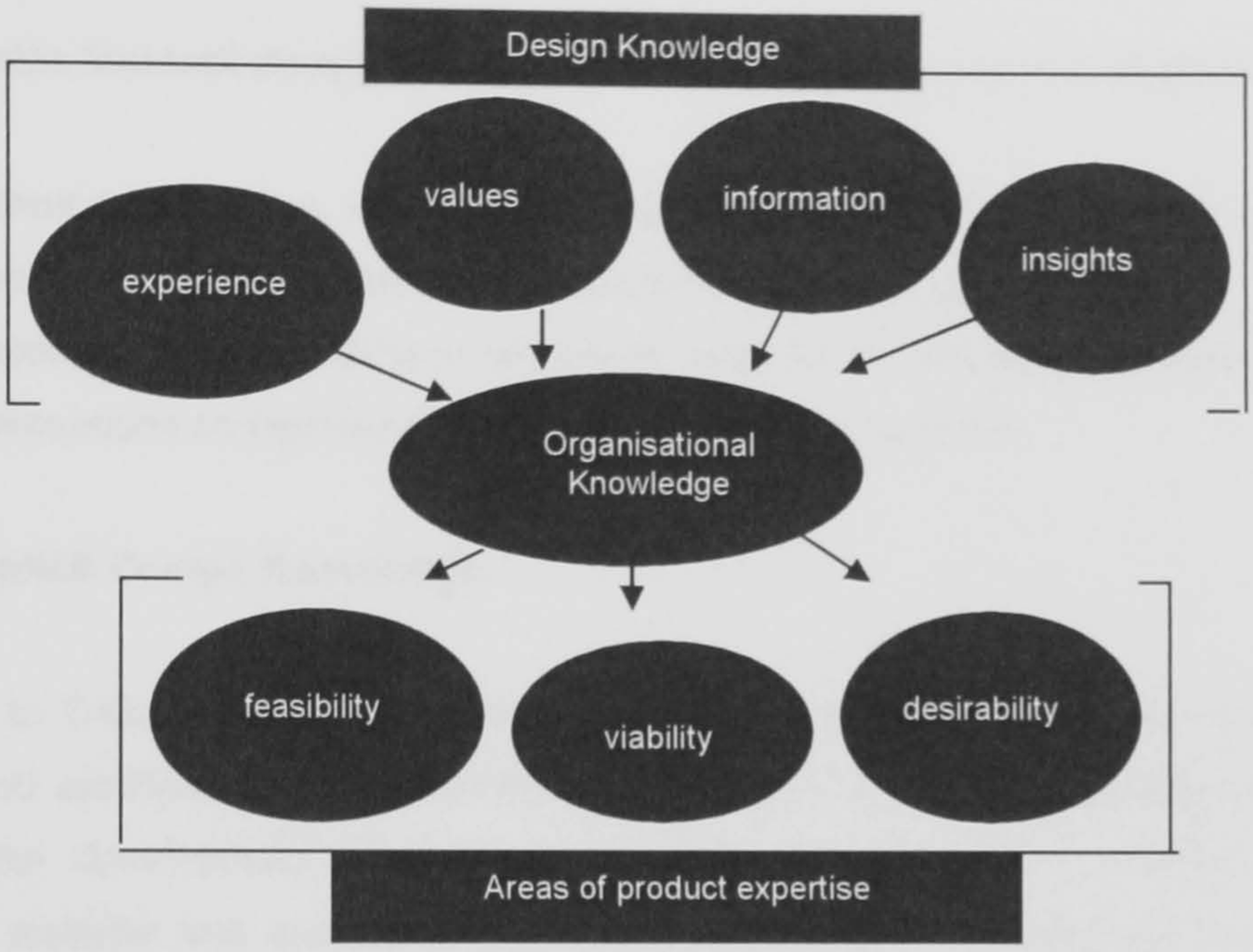

Figure 2.4: Design Knowledge and Product Expertise: Teixeira (1999)

According to Teixiera contextual information in the design of products for production is data that becomes information when the creator adds meaning to it; in other words when data is put into a context that others can understand and utilise. In his view the producers and user's understanding of products are different and as a result designers address a dichotomy, in that they collect and interpret data about products from two distinct contexts, the context of production and the context of use. The context of production refers to a product's, economic value, technical content and the management context in which the design activity takes place (Heskett 1998). Design for production provides the informational content or technical knowledge, which is required in the production of a commodity. In production, design involves two components, the ability to plan for design and the ability to explain and demonstrate the results of fabrication based on reasons or principles (Margolin and Buchanan 1995).

The context of use refers to a product's functional content, symbolic content and compatibility with the end user (Heskett 1998). With the user as its main source of reference, design is concerned with making and inventing artefacts and systems which enable us to operate in the physical, not always friendly, environment (Owen 1998). In the context of user the information used has an ideational or symbolic content in establishing a cultural identity for the user.

This is mainly due to the fact that in commodities usually associated with advertising or branding, design serves to evoke emotional responses, because the opportunities to create informative design are fewer.

2.3.2.1 Tacit Design Knowledge

Teixeira notes that tacit design knowledge can be segmented into two dimensions:

1. the technical dimension, which encompasses the kind of informal or hard to pin down skill or know-how such as intuition or the designer's vision of what works
2. the important cognitive dimension, which consists of schemata, mental models, beliefs and perceptions so ingrained designers take them for granted

2.3.2.1 Explicit Design Knowledge

According to Teixeira designers represent their ideas using explicit design knowledge, when analytic and synthetic methods are the driving forces of the design activity which seeks to promote the development of a design solution through formal structures. In his view designers analyse and synthesise new product concepts in based on five major values: aesthetic values, functional values, user values, sponsor values and creative values (See Table 2.2).

Table2.2 : Summary of the various approaches of design values: Adapted from Teixeira (1999)

Values	Approach	Goal	Organisational Knowledge
Aesthetic	Product, form, shape, colour and style	Create product identity through its formal attributes	Definition of unique qualities of external form
Functional	Product material, function, features, capabilities, potential physical constraints and limitations	Determine if particular design concept is physically feasible	Definition of appropriate functional attributes
User	'how' and 'why' users interact with products, user values and behaviour, and the context in which products are used	Develop products that please users according to their own criteria	identification of users needs and desires
Sponsor	Sponsor or company values and objectives	Define product concepts that support the sponsor or company in achieving their goals	strategic definition to achieve the desired result
Creative	Products conceptual differentiation, uniqueness and originality	Develop new ideas and innovative perspectives about product attributes	Differentiation from existing standards

2.3.3 Model 2

Rodgers and Clarkson (1998) in a study on the representation of expert design knowledge argue that design knowledge is a difficult concept to define and classify. In their view the design process requires the assimilation and application of many types of knowledge at different stages (See Figure 2.5)

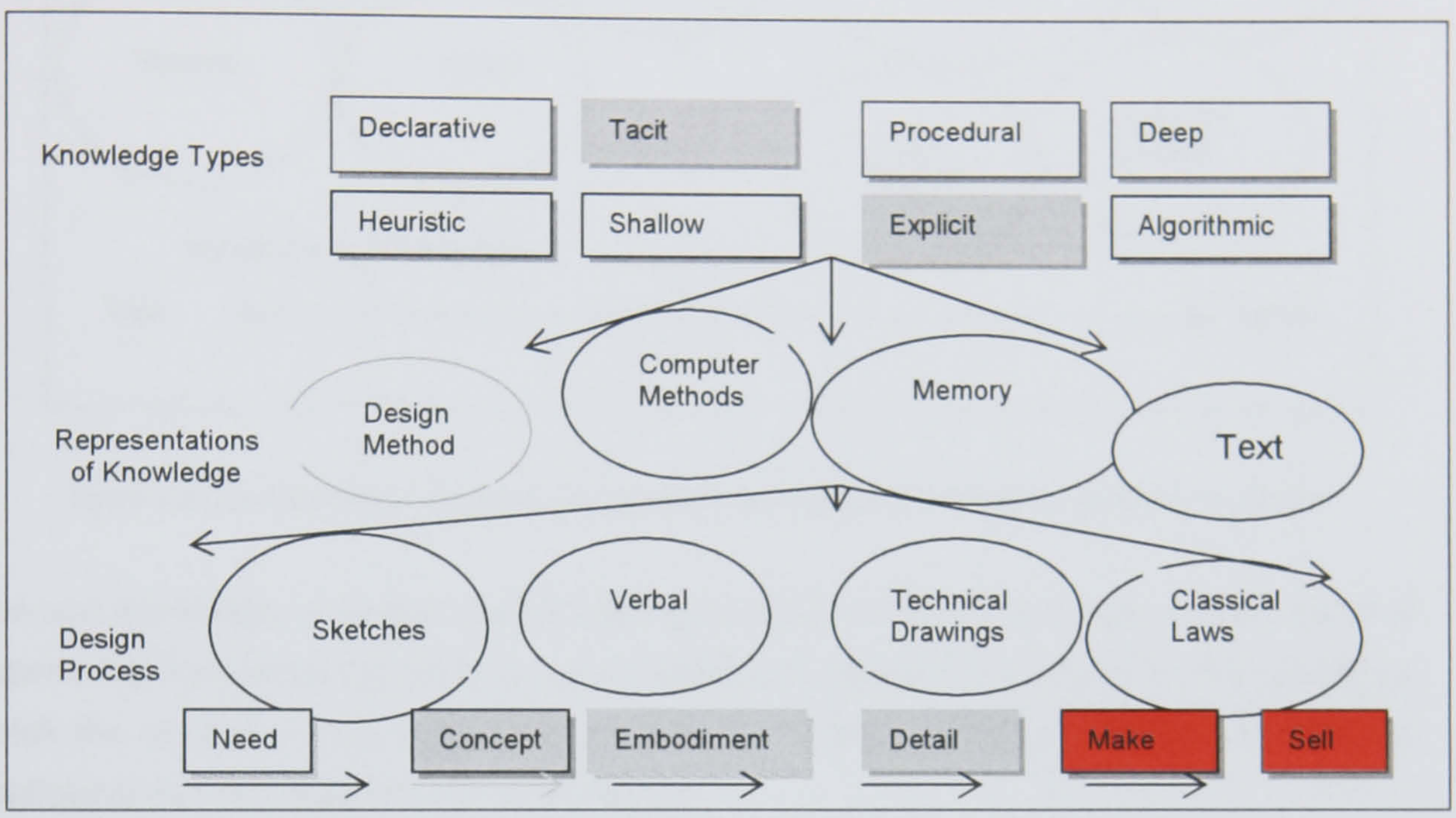

Figure 2.5: The classification of design knowledge:
Adapted from Rodgers and Clarkson (1998)

2.3.3.1 Tacit Design Knowledge

According to Rodgers and Clarkson (1998) expert design knowledge is mainly either tacit or explicit knowledge. In the design process the tacit expert knowledge of designers is an important tool in the decoding and codification of explicit knowledge. Tacit expert knowledge provides the capabilities for selecting relevant information and disregarding irrelevant information, recognising patterns in information, interpreting and decoding information based on experience (Davenport and Prusak 1998; The Knowledge Based Economy 1996).

2.3.3.2 Explicit Design Knowledge

Rodgers and Clarkson (1998) argue that design knowledge for production can be summarised by its explicitness. They note that it is difficult to make tacit knowledge explicit, but it is what is required if you wish to understand, explain, test or teach it. (See Figure 2.6).

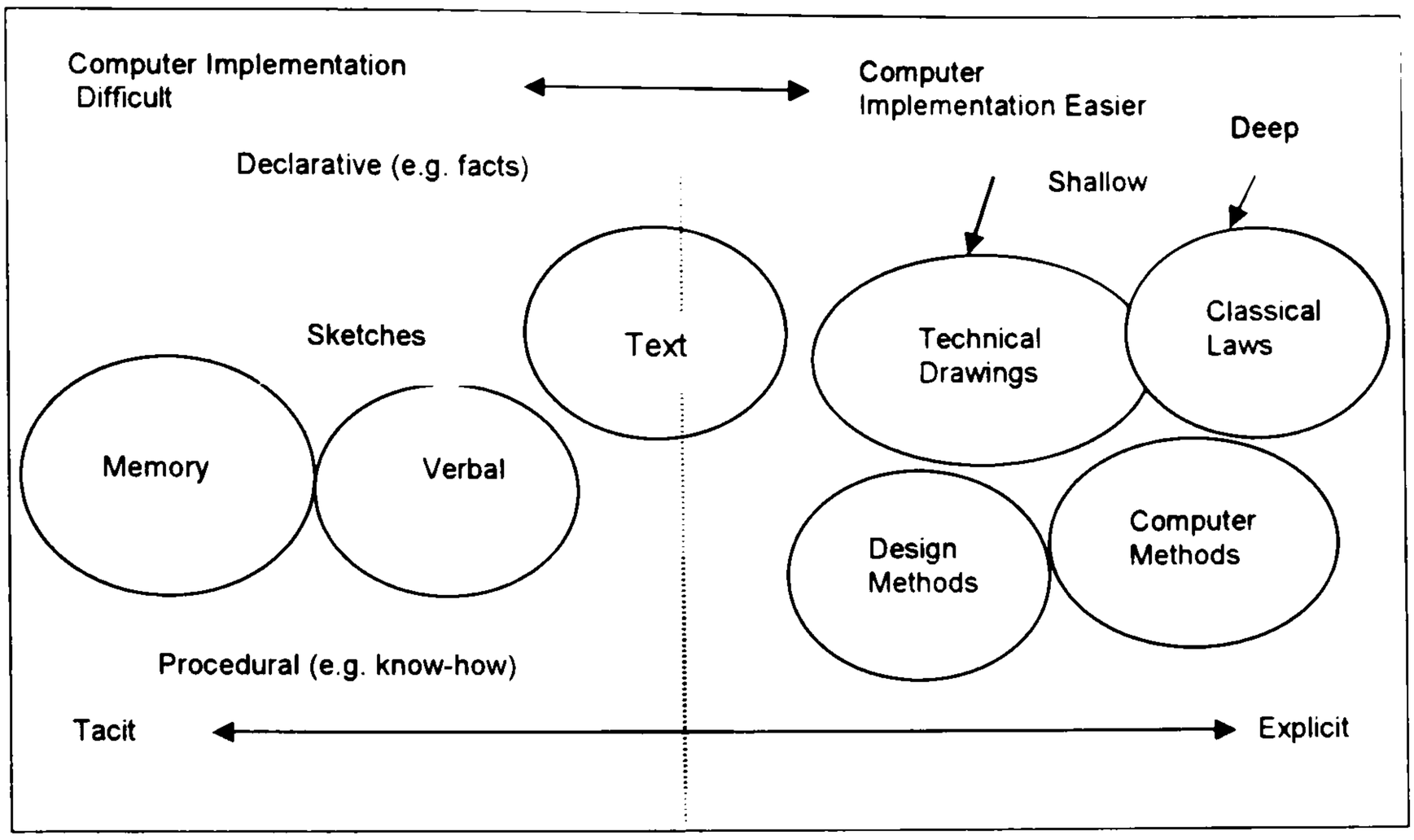

Figure 2.6:The classification of explicit design knowledge:Adapted from Rodgers and Clarkson (1998)

The tacit knowledge of design is what Chartrand (1996) defines as the 'skill or craft', forms of experiential knowledge gained by doing or applying as opposed to systemising knowledge by which the ancient Greeks referred to as 'science'. Design he argues constitutes both the application and the systemisation of knowledge.

Designers are therefore trained to have the ability to look, learn and reproduce what is seen through drawings and models; design is primarily about making ideas explicit in order to communicate information to others (Dormer 1993). Explicit design arguments and products contribute to either instructing or passing on information which allows the consumer or producer to make judgements about the value or worth of something (Margolin and Buchanan 1995).

2.3.4 Section Summary

Design knowledge falls within the domain of human knowledge and is concerned with the provision of new aesthetics, better design, creative advertising, and marketed goods and services. Design provides the thoughts, ideas and plans that organise the production of new products. The function of design knowledge during the production process is to provide innovative ideas regarding the shape, form and functions of product and to transform tacit knowledge into explicit knowledge so that it can be shared with other individuals and departments.

Tacit design knowledge is difficult to transfer because it is passed through experience, context specific and personal. In the production of new products the main advantage of making tacit knowledge explicit is that it facilitates the communication or transfer of information between individuals and different departments and decision making process. On the other hand because explicit design knowledge is codified knowledge it also allows us to observe what the designer, know, sees, absorbs and concludes and anybody with the same skills or knowledge can reproduce the knowledge.

2.3.4.1 Implications for the study

The section on knowledge helped to identify a number of reasons why human knowledge needs to be made explicit. First, tacit knowledge is difficult to transfer because it is personal and usually gained through experience. Second, in order to interact with others through computer and communication networks tacit knowledge must be made explicit. Third, it is difficult to make tacit knowledge explicit, but it is what is required if you wish to understand, explain, test or teach it. Four, all communication requires an addresser and addressee and there must be a contact which mediates this communication which can be either visual, oral, or electronic.

The section on knowledge showed why explicit design knowledge is considered an important part of the design process. First, designers represent their ideas using explicit design knowledge, when analytic and synthetic methods are the driving forces of the design activity. Second, it allows designers to pass on information, which allows the consumer or producer to make judgements about the value or worth of a product. Third, it acts as a system of recording or storing information generated during the design process.

The explicitness of design knowledge however makes it vulnerable to copying once it enters the public domain because any one with the necessary skills or knowledge can reproduce it. This explains why in order to ensure its control and distribution explicit design knowledge **(See Page 29)** is treated as private or personal property through the allocation of property rights.

Any model or primary research on the relationship between design and the functions of intellectual property would need to take into consideration the dual functions of explicit design knowledge i.e. it facilitates communication between individuals and is seen as intellectual property. Of the two models on design knowledge the model by Rodgers and Clarkson (1998) seems the most appropriate because it can be adapted to illustrate the role of designers in the generation of property and privatisation of design data or knowledge.

2.4 Defining Property

Any study on the relationship between design and the intellectual property rules that regulate it needs to give an account of why society considers it important for the transfer and exchange of explicit design knowledge to be treated as a property transaction.

2.4.1 Introduction

The Oxford dictionary defines property as a "thing or things belonging to someone or ownership". The Collins English Law Dictionary defines property as "the ownership or right over something or anything, which can be owned". Property can be cultural, private or communal. Cultural property refers to property that belongs to a nation, tribe or ethnic group. Cultural property includes all that is part of a nation's material heritage such as artefacts.

Private property is property that belongs to an individual or a specific group of people, such as a car or house. Communal property is property that is owned by the state on behalf of the community and can include land, buildings, art etc. Property is also attributed to anything that the body can externalise and exchange such as body fluids and organs.

In pre-industrial societies the idea of property was first recognised in the tools which early man made, the animals he subdued and the soil he cultivated (Matthews 1890; Reeve 1986; Demsetz 1967). Property was attached only to material things or actual possession of material things. In other words property must be capable of distinct and separate possession because people cannot have rights in non-material things (Munzer 1990, Ross 2002; Howel 1982; MacCormick 1982; Waldron 1984). According to Waldron (1988) the concept of property is: a system of rules governing access to and control of material resources and arise therefore as a means of determining who is to have access to such resources and for what purposes and when. The concept of property does not cover all rules concerning the use of material resources, only those concerned with its allocation.

Both the Roman and Anglo- American legal systems began with the possession of a resource or property by an individual (Nicholas 1962; Borkwoski 1997; Johnston 1999). According to Macpherson (1978), as soon as any society makes a distinction between property and mere possession[11] it defines property as a right. In his view "to have property is to have a right in the sense of an enforceable claim to have some use or benefit of something".

[11] by custom, convention or law

The concept of property as things according to Grey (1980) is a pre-industrial concept of property, which "mirrors an economic reality of the lots of freeholders, land of peasant farmers, small farmers, shops and tools of artisans". Munzer (1990) however argues that there are two different ways of understanding property. One view is of property as material resources, such as land and, houses etc. The other view is a sophisticated concept of property "as relations, legal relations among person or entities with respect to things" or a "bundle of sticks" or "rights." Similarly, Hohfeld (1919) notes property is not about things but relationships between persons, in his view, although a thing may have meaning in a philosophical discourse. It is not applicable in a legal discourse because a thing cannot bring or defend a lawsuit.

2.4.1.1 *The Function of Property Rights*

Property rights are seen as both an incentive and a method for the efficient use of scarce resources, and allow the owner to internalise both the cost and benefit of the property (Becker 1977; Borkwoski 1997; Blackstone 1978; Munzer 1990). Demstez (1967) argues that some communities will have less developed private ownership systems and others more highly developed state ownership systems. In his view capitalism depends heavily on markets and private property rights, and new property rights are created to resolve conflict over the allocation of scare resources.

The economic function of property rights has its roots in Roman law, which made the distinction between the "law of things" and the "law of persons". According to Nicholas (1962) the law of things included all those rights which are capable of being evaluated in monetary terms such as land, inheritance, slaves or cattle. The law of persons regarded the rights of a father over his children or the right of freedom itself, as these were usually incapable of monetary evaluation.

Property rights, Munzer (1990) argues represent the basis of "property- related expectations". In his view part of the psychological dimension of property is the set of legal expectations that individuals have. Part of its social dimension is the recognition that the majority of expectations depend on legal systems that will support and protect the rights of the legal owner. These expectations include the right to transfer and to exclude others from the use and enjoyment of a thing. Denman (1978) is of the opinion that without the power to "alienate or transfer the thing or interest owned there would be no land market or markets in goods and assets of any kind and no immediate means of distributing wealth".

Without laws they would be no property rights, property rights are a legal fiction created to regulate individual behaviour, space and possible conflict over the ownership of things. The law creates property rights, and the law decides what constitutes property and qualifies for property rights (Waldron 1984; Murphy 1994; Shapiro 1986; Haplin 1997). That is why Bentham (1978) wrote that property and laws are born together and when you take away laws, property ceases to exist.

2.4.2 The Justification of Property Rights in Knowledge

In many respects the word property as things in relation to intellectual property is a misnomer. Neither ideas nor rights are tangible things and no idea is truly original or the result of the work of a single individual. What the word does is to extend the common concept of property to legal relations because, as Macpherson (1978) observed, "property must be grounded in a public belief that it is morally right; if it is not so justified it does not remain an enforceable claim. If it is not justified, it does not remain property." The three major theories that have contributed to the introduction of property rights in knowledge originate from the work of John Locke, Emmanuel Kant and Wilhelm Friedrich Hegel.

John Locke (1632-1704): The main justification for intellectual property laws in the United Kingdom is based on the theory advocated by John Locke in his *Second Treaties*. Locke was of the opinion that in the process of tilling unoccupied land, man 'mixes his labour' with the land and acquires a natural right in that property. The labour of a man's body, the work of his hands, are seen as exclusively his, so the right to which he has mixed his labour became to be seen as an exclusive right (Locke 1632-1704; Macpherson 1964). According to Ryan (1980), for John Locke, occupancy and labour are the main premises for establishing property rights in tangible things such a land, but these rights are only for use and are neither permanent nor transferable. As a result by equating property rights to life, liberty and estate Locke created a moral space and with the taking of land without consent a private realm, (Tully 1980).

Emmanuel Kant (1724-1804): In France, and many German speaking countries the justification for intellectual property rights is seen as an extension of a persons personality or intellectual labour. The main exponent of this argument was Emmanuel Kant. Kant's theory was based on the idea that a genius was neither an imitator nor a follower of established rules but was the person who "gives the rules to art" and was therefore entitled to proprietary rights in his work (Kant 1724-1804). According to Hurt and Schuchman (1966) Emmanuel Kant viewed an author's work not as objects but as extensions of the author's personality and subject to protection as such.

Wilhelm Friedrich Hegel (1770-1831): Hegel argued that through one's mental aptitudes, erudition or artistic skills a person could acquire property by shaping the material world into some artistic form or putting a mark on to something (Drahos 1996). According to Ryan (1984), Hegel saw the modern world as a place in which individual responsibility was considered important and therefore "people had the capacity to decide and make decisions" especially with regards to their property". Implicit in Hegel's concept of property, is the idea of property as a survival and defence mechanism. In other words the property rights accorded to an individual are seen as rights that protect the individual from the state and competing individuals in society by carving out a sovereign space for the self (May 2001; Hegel 1770-1831).

Salmond (1962) observed that a right is any advantage or benefit conferred upon a person by a rule of law, because in his view the interests of men conflict with each other and the rule of justice therefore selects some for protection and rejects others. In the discourse on what interests and choices the rule of law would seek to protect or reject, all the three main theories played a significant role in establishing a space for the individual or private ownership of property rights.

Nevertheless, of the three theories within the Anglo-Saxon legal systems the most influential was the labour theory of rights by John Locke for a number of reasons. First, by equating the right to property to the right to life and liberty, John Locke created the moral justification for the individual's rights to private property. Second, his labour theory of rights encouraged people to distinguish between communal and individual property, in other words the relationship between what can be considered public property and what can be treated as private property. Third, the labour theory of rights was the foundation for the moral justification that the ownership of property (both physical and intellectual) was the protection of work or the labour, time and investment put into creating new things.

2.5 The Allocation of Property Rights to Design Knowledge

The 1983 White Paper on Intellectual Property Rights and Innovation in the United Kingdom, notes: "new products, new services and new manufacturing processes, no less than artistic works or scientific advances, have an idea as their origin. If the idea can be recorded and defined in some way it becomes property – intellectual property which can be brought or sold". The attribution of a property value to explicit design knowledge ensures the protection and regulation of creativity, which could otherwise be used freely by others without the permission of the owner (Ross 1998; Pubrick 1997; Reich 1978; Reilly 1987; Hann 2003).

In the United Kingdom there are two main methods by which explicit design knowledge is attributed a property value. The first method is when knowledge is first recorded during the conceptual and detailed phases of the design process; during these phases design knowledge is allocated automatic rights. The automatic rights allocated in the conceptual and detailed phases cover the majority of design knowledge and include copyright and unregistered design rights (see Appendix B of examples of work protected by copyright and unregistered design rights). The second method is through the formal registration of designs at the Patent Office; during this phase design knowledge is allocated registered rights through a formal process (see Appendix C for an example of a registered design). The formal rights allocated through the formal registration process are referred to as registered design rights (See Figure 2.7).

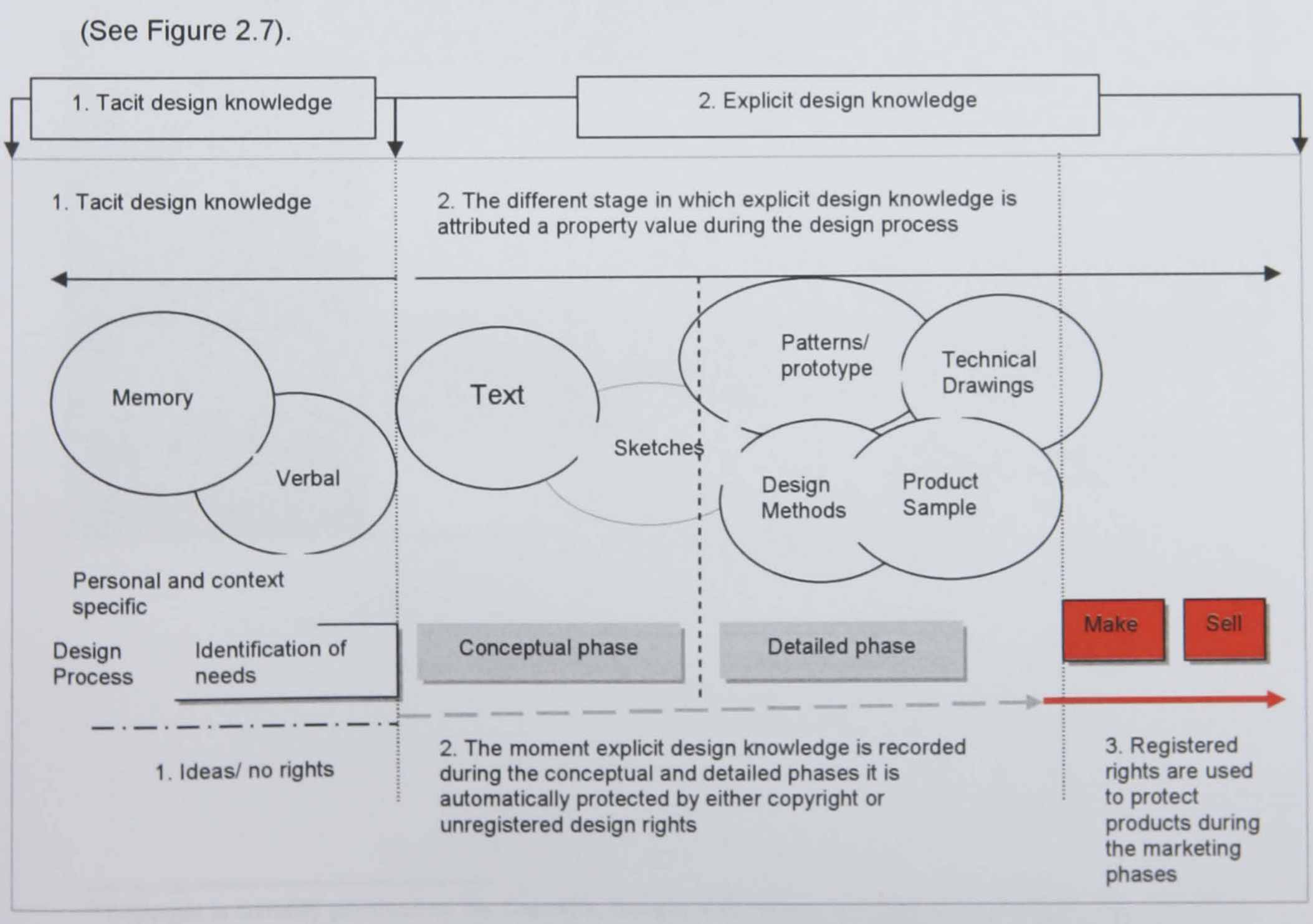

Figure 2.7: The allocation of rights during the design process: Adapted from Rodgers and Clarkson (1998)

In order to ensure that explicit design knowledge is attributed a property value Myrants (1977) recommends that after the initial stages of the design process designers should consult a design agent or licensing body to safeguard their copyrights prior to any formal design registration. Similarly Morris and Quest (1987) argue that designs should always be registered and proper records containing comprehensive drawings of the article in each stage of product development, including the completed phase should be prepared and archived.

In the United Kingdom statutory laws [12] govern copyrights and design rights (See Table 2.3).

Table 2.3: The associated rights: Adapted from Porter (2000)

Property Rights	Protect	Duration of Rights
Copyright property rights originally for print and non-industrial products Automatic Rights	Original Literary, dramatic, musical, or artistic works, sound recordings, films, broadcasts, graphic works including, photographs, painting or drawings, sculptures irrespective of quality	Life time of the author and up to 70 years after death: sound recordings, broadcasts and cable 50 years form time of creation/ If works of artistic craftsmanship are industrially produced protection lasts for 25 years from the date of first marketing
Registered Design Property Rights concerning the aesthetic and functional aspects of mass produced and cultural products Registered rights	Features or shape of configuration, pattern, ornament applied to an article by industrial process which are novel and have an individual appeal. Exempt from design registration are shapes determined by their function or the need to match another article to which they are connected.	5 years plus for 4 further extensions every 5 years
Unregistered Design Rights Copyright protecting the above Informal Rights	Any aspect of the shape or configurations of the whole or any part of an article; excluding commonplace designs where the shape is determined by the need to match another article to which they are connected.	15 years from end of the year in which design created or 10years after the design was first marketed. Amended to 3 years in the Unregistered Design Right in 2001

[12] Copyright is currently governed by the Copyright, Designs and Patents Act 1988. Design Registration was initially governed by the 1949 Registered Design Act (**RDA**), which was amended in 2001 by the Registered Community Design Right (**RCDR**)

Outside the United Kingdom these property rights are regulated and protected by conventions and treaties. Examples include the Intellectual Property-Related Trade Agreement (TRIP) and the Berne Convention for the Protection of Literary and Artistic Works. In the United Kingdom the Patent Office is responsible for the establishment and maintenance of the national framework of intellectual property rights. The main function of the Patent Office is to grant patents; register design rights and trade marks. It also provides information and advice on copyrights for producers and owners, has links to intellectual property organisations world wide and on its website contains databases on registered designs, patents and trademarks.

2.5.1 The Exchange and Transfer of Rights in Explicit Design Knowledge

Posner (1973), argues that for intellectual property rights to create an efficient use of resources they must be:

- universal: either owned or capable of being owned
- exclusive: others can be excluded from the enjoyment of the property right
- transferable: can be exchanged or transferred

Drahos (1996) is of the opinion that if explicit design knowledge is not capable of being owned the incentive to create it will be lacking. In his view design rights, and copyright are social innovations designed to create artificial scarcities where non-exist. These scarcities in turn were intended to create the needed incentives for acquiring new design knowledge. The three main functions of intellectual property laws therefore are:

- to establish the object of property
- to allocate rights to the object of property or resource
- to regulate the transfer and exchange of rights (See Figure 2.8)

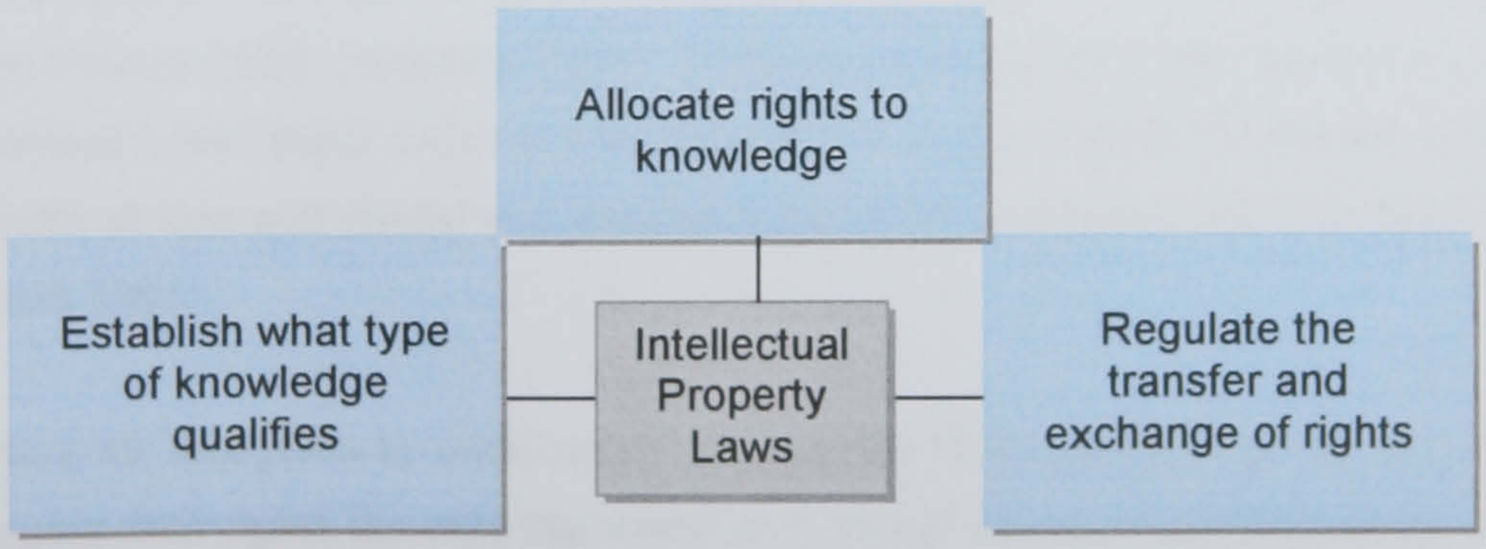

Figure 2.8: The Main Functions of Intellectual Property Laws

Due to intellectual property rules such as copyrights and design rights, when explicit design knowledge is transferred or sold, two bundles of property are exchanged the explicit design knowledge, and the rights of use. According to Aichian and Demsetz (1967) the value of the rights determines the value of the explicit design knowledge that is exchanged or sold.

2.5.2 Ethical and Moral Issues

Collingwood (1946) is opposed to the idea that the work of artists should be rewarded by property rights because it is considered 'original' or purely their own work. Central to his argument is the belief that all creative work is collaborative because we borrow from the idea of others in order to create something new.

Laddie (1996) observes that "The whole of human development is derivative. We stand on the shoulders of the scientists, artists and craftsman who proceeded us. We borrow and develop what they have done not necessarily as parasites, but simply as the next generation". Drahos (1996) is of the opinion that a strong labour theory of intellectual property threatens the legitimacy of individual right holders, as it forces us to reconsider the role of labour as property in a community and its effects on the intellectual commons. Central to his argument is that intellectual property rules represent an individualistic notion of creativity and within an interdependent and differentiated society the labour of one individual is made possible by the labour of others.

Mokyr (1990) is critical of writers on capitalism who often forget that technologically creative societies started of as borrowers and typically soon turned into the generators and exporters of technology. In his view they turned out to be generators and exporters of technology because as in the case of Britain there was an "endowment of skilled labour" to perfect those inventions. Though it is argued that labour is too indeterminate or incomplete to use as a basis for the justification of property John Locke's labour theory still remains a powerful totem for those seeking an ideological legitimacy in the privatisation of knowledge (Drahos 1996; Landes and Posner 1989; Endshaw 2001). It remains a powerful totem because it, served as a bridge between the feudal order of estates and the modern world of contract, between an agrarian world of lord and vassal and the industrial world of masters and machines (Denman 1978; Honore 1961).

It is important for designers to understand not only the financial benefits that can be gained from managing their rights but also the moral and ethical issues of property rights in order to allow them to make responsible decisions about the ownership of property rights for a number of reasons.

First, property rights are powerful rights because they allow individual designers to appropriate through the ownership of rights work generated by others. Second, property rights are potentially unethical because individual designers can also contribute to limiting public access to knowledge when they insist on enforcing their rights to knowledge.

2.5.3 Section Summary

All societies have rules concerning property. Property can be viewed as either the ownership of material objects or the ownership of immaterial rights. In modern society property is considered an amalgamation of rights, which are applied, to anything that has a monetary value. Property rights protect a person's wealth because through property rules individuals are allocated rights that give them power over the control and distribution of material objects. Property rights are powerful rights because they exclude others from the enjoyment of material objects and are also a source of inequality because they can be privately owned.

Property rights are legal rights created by law which others have a legal obligation to respect. Failure to respect those rights means the owner can seek legal redress to claim for compensation or cessation of the act. The owner of property rights has the rights to use, possess, manage, receive income, transfer, waive, exclude, abandon, consume or destroy a material object. For property rights to have an efficient use they must be capable of being transferred, owned and exclusive.

In the modern world in which we live property is viewed as the right to transfer because without the right to transfer there would be no markets in goods or transfer of wealth. It can be argued that explicit knowledge represents the intellectual property on to which intellectual property rights are then allocated.

Intellectual property rules are property rules that regulate the ownership of knowledge. They establish what knowledge qualifies for property rights as well as the rights, duties and obligations of the owner. When knowledge is transferred two property transactions take place; the material object and the rights allocated to the object. The main justification of property rights in knowledge in the United Kingdom is based on John Locke's labour theory of work. He argues that a person is entitled to own as property what ever they produce as a result of their labour. The section on property showed that property rules exist primarily to protect markets in wealth, through the ownership of property rights. The main function of property rights is to ensure that any exchange or transfer of property is for a value. Property rights are only allocated to material objects.

Ideas or tacit knowledge constitute personal and abstract entities. In order for ideas or tacit knowledge to be owned they must be transformed or embedded into a material object. The advantage of the explicit design knowledge in the allocation of rights is that it represents the material object onto which property rights can then be allocated. As a result any subsequent exchange or transfer of the explicit design knowledge generated during the design process is automatically regulated and protected by intellectual property rules and rights. The privatisation of explicit design knowledge therefore begins during the conceptual phases and ends with the formal registration of rights using a graphic representation of the final product.

2.5.3.1 Implications for the study

The majority of people take a common view of property as relating to material objects rather than the sophisticated concept of property as an amalgamation of rights. Curry (1997) argues that knowledge or information within a capitalist society can only have a value if it is consummated through the act of exchange. In a capitalist society the exchange and transfer of knowledge is regulated by property rights in order to protect the transfer and use of material objects for a value. Given the vulnerability of explicit design knowledge once it enters the public domain organisations or individuals will seek to ensure private ownership of the knowledge through the acquisition of property rights.

Intellectual property rules not only represent a system of reward for the investment and labour spent in creating new knowledge but it seems they are the only system we currently have of regulating and protecting explicit design knowledge within the public domain. As a result any design knowledge that is taken from the public domain for commercial use is seen as an illegal transfer of rights. For example, designers who make use of knowledge taken from the Internet in order to create new knowledge unwittingly enter into legal relations over the exchange and transfer or rights mainly, because they are making use of knowledge that they neither invested time or labour in creating.

Nonetheless, without intellectual property rules and rights, explicit design knowledge would not be capable of being exclusively owned or transferred and as a result it would have no monetary or commercial value. As a consequence organisations or individuals would have no added incentive or motive to invest in design. The relationship between property and intellectual property rules can therefore be summarised as follows.

1. They are a system of property rules:

- that regulate and protect the right to capital or the right to transfer explicit design knowledge for a value

- that regulate and protect the reproduction and distribution of explicit design knowledge within the public domain
- that provides the right to legal action or compensation for any unauthorised transfers of explicit design knowledge

2. In addition like all property rules they:

- represent a system of that allows individuals to gain or exercise power over others
- only exist as long as the public believe they are morally right
- contribute to social inequality
- exclude others from the use or access to material objects in this case explicit design knowledge
- require the rights to be policed by the owner
- can be sold as single parts or as a complete package

3. Furthermore unlike other property rules relating to commodities such as land or buildings:

- the rights have a time limit
- the rights are only applicable to knowledge
- the rights are heavily regulated and not applicable to all knowledge
- the rights are extremely difficult and expensive to police

It is therefore important for designers to understand not only how they acquire rights, but also the function of property rules in the exchange and transfer explicit of design knowledge. This is because, as long as designers fail to appreciate the central role of property rights in the generation, transfer and exchange of explicit design knowledge the exchange value of their knowledge will always be determined not by the designers but by the clients or other individuals.

2.6 Designers and the Current Management of Property Rights

At the time of the industrial revolution the knowledge of the artisans was primarily tacit knowledge, that is personal knowledge gained through experience. The introduction of design education offered artisans the opportunity to make their tacit knowledge explicit through the use of freehand and technical drawings. With the advent of the industrial revolution creative labour was integrated into the capitalist system because creative labour became the source of much-wanted innovation (Drahos 1996; French 1970; Hoyrn 2002; Lorimer 1996; Read 1953). For example, Craske (1999) notes that in the mid-eighteenth century, "as consumer markets expanded, the affluent purchasers of luxury products were expected to understand that behind the objects they brought was a quality called design". The integration of design into the production process meant that as part of their employment contract, the artisans transferred their rights to any knowledge generated during the course of their employment to their employer in exchange for a monthly wage.

Recent employment patterns within the creative industries however indicate that designers will be at the forefront of changing work patterns in the labour market. For example, the report by Spilsbury (2002) on the Assessment of Skill needs in the Media and Creative Industries (**ASMCI**) on behalf of the Department of Education and Skills suggests that the Media and Creative industries[13], currently employ a workforce of over 960,000. Of this workforce, 129,000 were employed as designers, with 86,000 working as graphic designers and 43,000 in product, clothing, interior and related design industries. The report also notes that due to technological change there will be further reductions in the number of staff required to produce a design and managers are in some areas beginning to replace designers in doing the routine design work. The reduction in staff numbers has meant that designers now have to also take on tasks outside the traditional production-focused design ambit.

Similarly in a study by Parker (1999) he found that the creative industries including design, designer fashion, music, publishing, crafts, advertising etc are in many respects at the forefront of changing work patterns in the labour market. The nature of the work the study claims, vary from freelancing to full-time employment, short-term contract work, to part-time and unpaid work. Studies on employment patterns in the area of the creative industries, however argue that though there is an increase in risk-taking, individual autonomy and self determination, there is also an increase in low wages, part-time and short-time contracting, insecurity and uncertainty (Blair, Grey and Randle 2001; Rolfe 1998)

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[13] which include; audio-visual, design, photo imaging, print, graphic communication and the publishing sectors.

Recent changes in employment patterns within the design sector creates a need for a better understanding of the role of intellectual property rules in the exchange of design knowledge. transfers for a number of reasons.

First, in fulltime employment contracts, the employer and not the designer is still considered the legal owner to the rights to any design knowledge generated during the course of the employment contract. By contrast, in commissioned work protected by informal rights the designer and not the commissioner of the work is considered the legal owner of the rights to any design knowledge generated during the course of the employment contract. This means that the ownership of copyright or unregistered design rights in artistic works, design documents or articles undertaken on a freelance, short-term contract or consultancy basis belongs to the author or co-authors unless the exception concerning fulltime employment applies (Black 1998; Pearson and Miller 1990; Cornish 1990). As a result, the responsibility of managing the transfer of rights falls on the consultant, short-term contract or freelance designers in commissioned work protected by informal rights because they are considered by law to be the legal owners.

Second, consultant, short-term contract or freelance designers who accept a fee or provide an invoice can unwittingly transfer all their rights because in the acceptance of a fee or the provision an invoice is an implied transfer of rights (Denham 1980). In order to ensure that designers do not unwittingly transfer their rights prior to any formal transfer of work both the designers and client need to stipulate the terms and conditions by which rights are being transferred. In other words the designer can negotiate either the transfer of the rights as a complete package or retain future use of some of the rights.

The ability to manage the exchange and transfer of design knowledge as a property transaction would not only assist consultant, short-term contract or freelance designers in reducing the illegal copying of explicit design knowledge but also allow them to determine or negotiate the exchange value of their work.

2.6.1 Design and the Management of Rights

A person with ideas it seems has in a broad sense assets and in order for that person to make a living in a market society, those intangible assets have to be recognised as property so that they can be commercially exploited (Drahos 1996; Black 1989; Pearson and Miller 1990; Cornish 1990). The 1983 White Paper on Intellectual Property Rights and Innovation in the United Kingdom however found that though the United Kingdom depends heavily on getting value from its intellectual property there is still insufficient awareness of the importance and value of the informal and formal rights in the creative industries.

Browell (1996) writing on the 'Training and Development' sector noted that there are many myths concerning the use of copyright materials which is an indication of a lack of knowledge of the legal issues affecting training and development specialists. The market failure of designers in managing their designer's rights on the market according to Chartrand (1996) can be attributed to two main factors. First, rights are easily alienated or transferred to the advantage of corporations, because designers have a poor understanding of the intellectual property rules that apply to them. Second, except for a few talented and recognised designers, design as an industry in general lacks sufficient market power because of poor organisational capacity to control the transfer and exchange of rights as producers.

Research shows that international competitiveness will increasingly be dependent on abstract intellectual properties, the economic rights associated with them and the ability to enforce these rights (Chartrand 1995; Laddie 1996). For example, the Trade Related Aspects of Intellectual Property (**TRIP**) agreement of 1994 published by the World Trade Organisation views, intellectual property as private rights. The European Union's Directive on Design Rights of 2001 was created to harmonise legislation on the protection of designs amongst European Union member countries.

Research on recent articles on intellectual property in design related journals from 1921 to the year 2000, show a significant increase in articles on design-related copyright issues (See Figure 2.9).

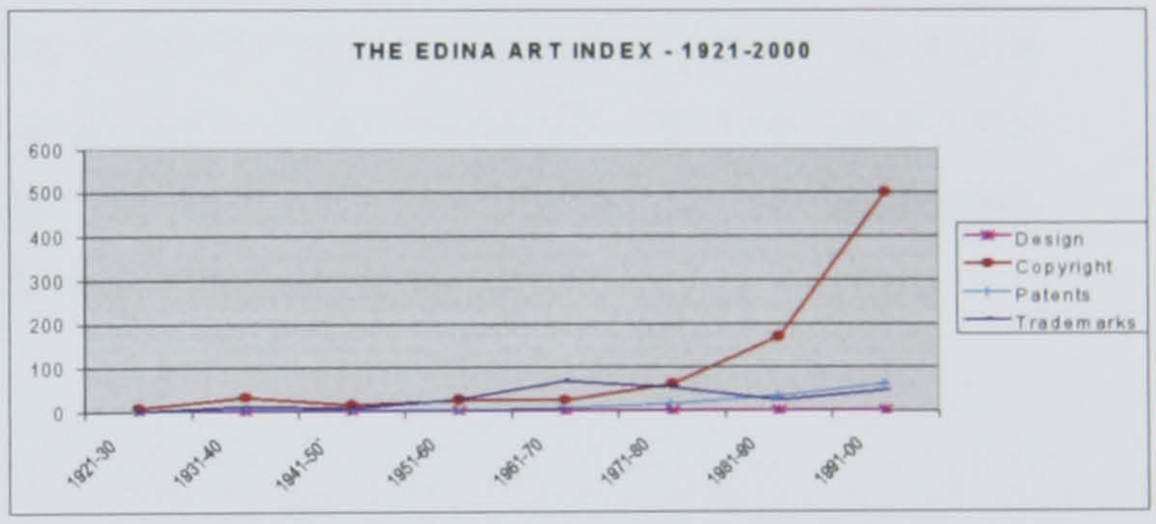

Figure 2.9: Articles on Intellectual Property Rights: 1921-2000

Fellner (1985) notes that the majority of copyright in artistic works by designers are based on copyright in sketches, or drawings and the word artistic is used as reference to the manner in which lines and shapes are expressed in drawings. The European Union's Directive on the Protection of Designs includes the introduction of a Registered Community Design Rights (**RCDR**) and Unregistered Community Design Rights (UCDR) to regulate the transfer and exchange of designs within the European Union (Design Registration 2002; Mcgovern 2000; EU Directive 1998).

Smith (2001) argues that prior to the new **RCDR**, the first to file was considered the owner of a registered design. The new law allows a designer a grace period of one year in which to test the commercial value of a product. During that year the Unregistered Design Right (UDR) protects the design documents or articles in which practical knowledge is first recorded.

The increase of articles on copyright shown in Figure 2.9, could be indicative of a growing awareness of the role of intellectual property rules or copyright in the transfer and exchange of design knowledge or a rise in the cases of illegal copying due to the Internet. Borwell (1996) notes that in today's highly competitive and commercially aware environment: "the legal issues surrounding work are becoming increasingly important". In her view in a knowledge economy amongst the key legal issues that she views as important are: The Data Protection Act; the Copyright, Designs and Patents Act of 1988 and the Berne Convention for the Protection of Literary and Artistic Works.

According to Woods et al (1999) "people should not wait until they have been copied a few times before gaining an understanding of the law". In their view understanding the law prior to being copied should allow them to pursue strategies that would protect their work from being copied in the first place and would minimise the damage done if copying did take place. In their survey on attitudes to; 'Copyright and Training for Textile Design Protection in the United Kingdom'.

Wood et al (1999) found that the majority of the respondents strongly "supported the: assertion that more effort should be put into college diploma and degree courses, so that future graduates will enter the industry better informed about the rights conferred under copyright law". Furthermore, tint he Creative Industries report of 1999, the authors noted that an easier way of understanding intellectual property should be sought. In their opinion the cumbersome legal language surrounding intellectual property needed to be addressed because it had the potential of hindering future education programs.

2.6.2 Section Summary

The section on communities showed that even though designers are part of the community affected by intellectual property rules. They lack sufficient knowledge of the functions of the property rules that apply to them. The majority of people take a common view of property as relating to material objects rather than the sophisticated concept of property as an amalgamation of rights. The lack of knowledge designers have on the property rules that apply to them means that when designers generate, transfer and exchange design knowledge they are unaware that they are also entering into property relations over the transfer and exchange of rights.

Organisations invest in design not only as a strategy for competing but also as a reward for the time, labour and investment spent in the creation of innovative knowledge. Established firms or clients are able to determine and control the exchange value of design knowledge not only because of their financial clout or legal resources but also because designers in many circumstances allow them to.

As a result, the less knowledge designers working in design studios, on freelance or short-term contracts have concerning the property function of design the less control or power they have in negotiations concerning the transfer and exchange of the rights attached to their knowledge.

2.7 Chapter Summary

The literature review has shown that designers lack sufficient training or knowledge on the functions of intellectual property rules. In addition because of their lack of knowledge they do not determine the exchange or transfer of rights. Improving the training of designers in the property rules that apply to them is seen as the key to improving how they manage and protect their rights. Some of the key areas of concern and recommendations raised in the literature review included the need to:

1. Protection-related issues

- improve how designers understand the functions of intellectual property rules
- improve how designers understand copyright
- change the complex legal language surrounding intellectual property laws

2. Management-related issues

- improve how designers manage the assignment or transfer of rights
- improve how designers manage the issue relating to the infringement of designs or illegal copying
- improve data management during the design process
- encourage the use of design agents and the collective management of rights

2.7.1 Implications for the Primary Research

The aims and objectives of this research are to investigate the reasons intellectual property rules affect design, and to identify the nature of this complex relationship. The knowledge acquired could then be used in the development of a model that explains or describes to designers the role of the property rights that regulate and protect their work.

The literature review helped to identify the key reasons intellectual property rules affect design and these included the following:

- the definition and role of design knowledge within the production process
- current design knowledge models used in the production process
- the reason design knowledge is an integral part of intellectual property rules

- the reasons property and intellectual property impacts on the transfer and exchange of design knowledge within the public domain
- current trends in employment patterns within will the design sector
- the main problems designers have in their interactions with the intellectual property rules that apply to them. These problems ranged from their poor understanding of the property rules that apply to them in areas such as copyrights to the assignment of rights.
- the main methods by which property rights are allocated to explicit design knowledge

According to Spradley (1980) cultural knowledge is a shared system of meanings, learned, revised, maintained and defined in the context of a social group. The first stage of the primary research therefore focuses on a survey on the knowledge and perceptions of design students in the final stages of their studies for a number of reasons:

- first, in order to catalogue their knowledge and attitudes to copyright and design rights
- second, to identify any similarities or dissimilarities with the problems suggested in the literature review

The findings can then be used to develop the model that could assist or better inform designers of the property rules that regulate and protect their work.

3. Survey of Design Students

Based on the results of the secondary research a survey on the knowledge and perceptions of design students in the final stages of their studies was conducted. The aim of the study was to catalogue their knowledge and attitudes to intellectual property rules and to identify any similarities or dissimilarities with the problems suggested in the literature review. The methodology used in the process included questionnaire design, data collection, analysis and interpretation of data and overall summary of findings.

3.1 Introduction

One of the advantages of using surveys in the collection of data according to Barbie (2001) is the ability to identify the attributes of a population from a small group of individuals. The survey of the design students was undertaken on a single site, therefore the results were not representative of the whole design student population in the United Kingdom. What the survey however offered was the opportunity to undertake an in-depth study of the strengths and weaknesses in the knowledge of designers initially identified in the literature review with the aim of cataloguing any similarities or dissimilarities.

The literature review showed there is a growing need for designers to understand intellectual property laws that has not been matched by an increase in training opportunities. It seems designers leave college with a poor understanding of the rules that apply to them and are poorly prepared for the property implications of their work. In addition, the literature review showed the designers have a poor understanding of copyright and registered design rights. This makes them vulnerable to unauthorised copying, open to accusations of illegal transfer of work and diminishes their ability to negotiate the ownership of rights when undertaking work for established companies.

The survey therefore sought to:

- identify participants about to enter the employment market
- identify the strengths of their knowledge on the basic principles of copyright, registered design rights, infringements of designs and assignment of rights
- identify the weaknesses of their knowledge on the basic principles of copyright, registered design rights, infringements of designs and assignment of rights.
- identify opinions and expectations of the participants regarding intellectual property related issues and training received

The main method for data collection was a self-administered questionnaire and the analysis of data included both qualitative and quantitative methods (see Figure 3.1).

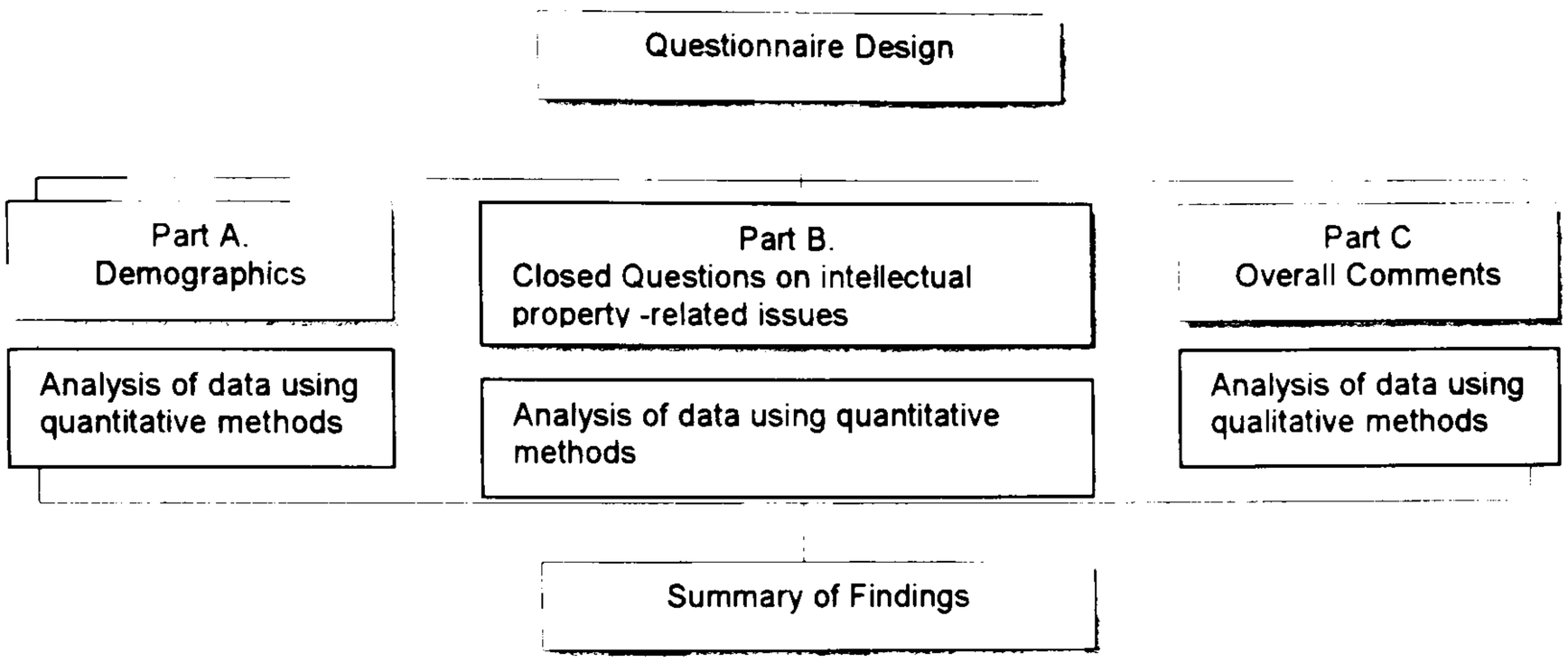

Figure 3.1 Data Collection methods and Analysis of Data

3.2 Methods of Data Collection

Initially, a telephone survey was considered to be the best method for collecting data, however due to data protection regulations the process of acquiring the respondents telephone numbers became too bureaucratic and time consuming. For reasons of economy, speed and to solicit candid responses, self-administered questionnaires were used to collect data.

In order to avoid a high rate of incomplete forms the researcher personally distributed and checked the completed forms after completion; any incomplete forms were returned to the respondents for completion. In the design courses[14] for which it was not possible for the researcher to collect the forms a request was made to the course leader to assist in collecting and checking the completed forms on behalf of the researcher.

[14] fashion design and fashion buying, design management and innovation interior design product and furniture design.

3.2.1 Structure of Questionnaire

The questionnaire comprised a list, of closed and open questions for comments and was divided into three main parts to facilitate coding and final analysis of data (see **Appendix D).** The closed questions were selected because; they allowed for standardised responses, facilitated pre-coding and reduced the researcher's bias in influencing responses. The main disadvantage of closed questions is that, they remove spontaneity (Joliffe 1986).

In addition as, not all the questions maybe appropriate for all the respondents and moreover as one is less likely to obtain unusual responses, a commentary section was therefore included in order to understand the reasoning process of the respondents (See Table 3.1).

Table 3.1: Structure of Questionnaire

Structure	**Content**	**Information need**
Part A	Demographics	Respondents age, gender and occupational entry points
Part B	Closed Questions	Respondents' knowledge on copyrights, registered design rights the infringement of designs, assignment of rights to a design. In addition, the respondents' rating of the training received and views on training needs.
Part C	Comments section – not compulsory	The views, experiences and expectations of the respondents with reference to the closed questions.

3.2.2 Sampling Method and Selection of Site

There are a number of sampling methods that can be used in selecting a sample for a survey: probability or non-probability sampling. According to Bryman and Burgess (1994) in probability sampling, the participants are selected by; a randomised mechanism that assumes selection is independent of subjective judgements. In their view in non-probability sampling the selection of the sample group is based on the researcher's subjective judgement and leads to the risk of findings not being valid because of any weaknesses in the selection process.

Similarly, Babbie (2001) notes that probability sampling remains the primary method of selecting large representative samples for social science research. He however acknowledges that probability sampling maybe impossible or inappropriate in many research situations. In his view non-probability sampling is used in cases in which the researcher has limited resources, is unable to identify members of the population, or needs to establish the existence of a problem.

The limit of non-probability sampling is that it increases uncertainty in using data to represent a given population, moreover, it puts a strain on the validity of the findings (Bryman and Burgess 1994). As this research was primarily exploratory rather than explanatory, and because it had limited funds and problems in enumerating the population (mainly due to Data Protection laws) non-probability sampling was viewed a practical choice. The sample group was selected on the basis of availability, recommendations, similarity, and knowledge of the population and the purpose of the study.

The sample group comprised of students from De Montfort University's Faculty of Art and Design who had undertaken three or four year degree courses in an area protected by copyright or registered design rights and were at the stage of preparing to enter the employment market. The knowledge they had prior to entering the employment market would also be a contributory factor in determining how they managed the property implications of their work.

3.2.3 Choice of Site

The survey was limited to De Montfort University for a number of reasons. De Montfort University offers a very wide range of design courses[15] that are regulated by copyright and registered design rights. All the course are based on the same campus allowing access to course leaders and final year students in the last weeks of their course that would not have been possible in other universities.

Strategic and cultural differences were also taken into consideration because there was no guarantee that their intellectual property policies would be the same. For example, at De Montfort university in there 'GENERAL REGULATIONS AND PROCEDURES AFFECTING STUDENTS (Chapter 11)' it states that: "the intellectual property rights generated students as part of their course of studies belongs to the university". In addition "any cases concerning intellectual property and its rights should be referred to the Intellectual Property Advice Centre". De Montfort University's centralised policy on the intellectual property generated by students will undoubtedly determine how the training of intellectual property is organised within the Faculty of Art and Design.

Furthermore, another reason for choosing De Montfort University as the sole site was due to the fact that not all design universities offered the same range of courses available at De Montfort University which would have meant limiting the number of courses surveyed.

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[15] Courses offered include; ceramics and glass, contour, interior, fashion, multimedia, product, footwear, furniture and industrial design. In addition other course offered include; surface decoration, textile design and production, metalsmithing and jewellery, fashion design and fashion buying, design management and innovation.

In addition, because of the limited resources available the survey of other universities would have had to resort to mailing lists which can result in problems of low responses as indicated by Babbie (2001). Another significant barrier in extending the design student survey, were the problems that would have arisen concerning the formal and informal rights of the participants such as; identifying suitable gatekeepers or contacts, gaining informed consent, as well as issues relating to the right to privacy and protection from harm.

3.2.4 Piloting the Questionnaire

A pilot questionnaire was tested on a group of four participants from each course in order to ascertain whether the questions were clear and precise, to ensure the participants found the questions relevant and that they were willing to answer the questions. The final questionnaire was the developed and completed for distribution.

3.2.5 Distribution and Collection of Questionnaire

The preliminary phases of the survey were used in identifying a gatekeeper to allow access to the respondents. For ethical and professional reasons the course leaders from each of the degree courses were contacted via e-mail or by telephone. A meeting was then arranged to discuss the aims and objectives of the survey with the course leader and to request permission to undertake the survey.

Once permission was granted a time and date was agreed for the researcher to come and personally distribute the questionnaires amongst the students. On the established date the questionnaires were distributed to the respondents after a short presentation on the overall objective of the survey. The researcher remained within the various departments when it was possible for the respondents to complete the forms[16]. On the occasions the respondents were unable to complete the forms in the presence of the researcher the course leader was tasked with the responsibility of collecting the completed forms[17]. The completed forms were then coded into categories for analysis.

3.2.6 Survey Results

The survey was undertaken over a period of three weeks (April/May 2002) prior to the final departure of the respondents. At the time of the survey De Montfort University had over 400 students in their final year of studies within the Faculty of Art and Design.

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[16] metalwork and jewellery, contour design, footwear design, multimedia design, surface decoration and textile management departments

[17] product and furniture design, interior design, textile, clothing retail and marketing and fashion design.

According to Bailey et al (1995): "the smaller the sample, the less adequately it will represent diversity in the population". The response to the survey was therefore considered good because out of the 215 forms distributed amongst the respondents, 130 forms were returned. Among the 130 returned forms the researcher recorded 112 valid forms (**See Appendix E** for the breakdown of valid forms according to individual courses).

3.2.7 Data Analysis Methods

The data collected from Part, A and B of the questionnaire was analysed using descriptive statistics and Microsoft excel whereas data collected from Part C was analysed using a grounded theory approach and Microsoft word for data processing.

3.2.8 Analysis and Interpretation of Data

Data analysis and interpretation of the questionnaire was divided into three parts. Part A focused on the analysis of the demographic data, group and individual occupational entry points. Part B focused on the analysis of the group and individual responses to the closed questions by the respondents. Part C focused on the analysis of the overall comments (See Figure 3.2).

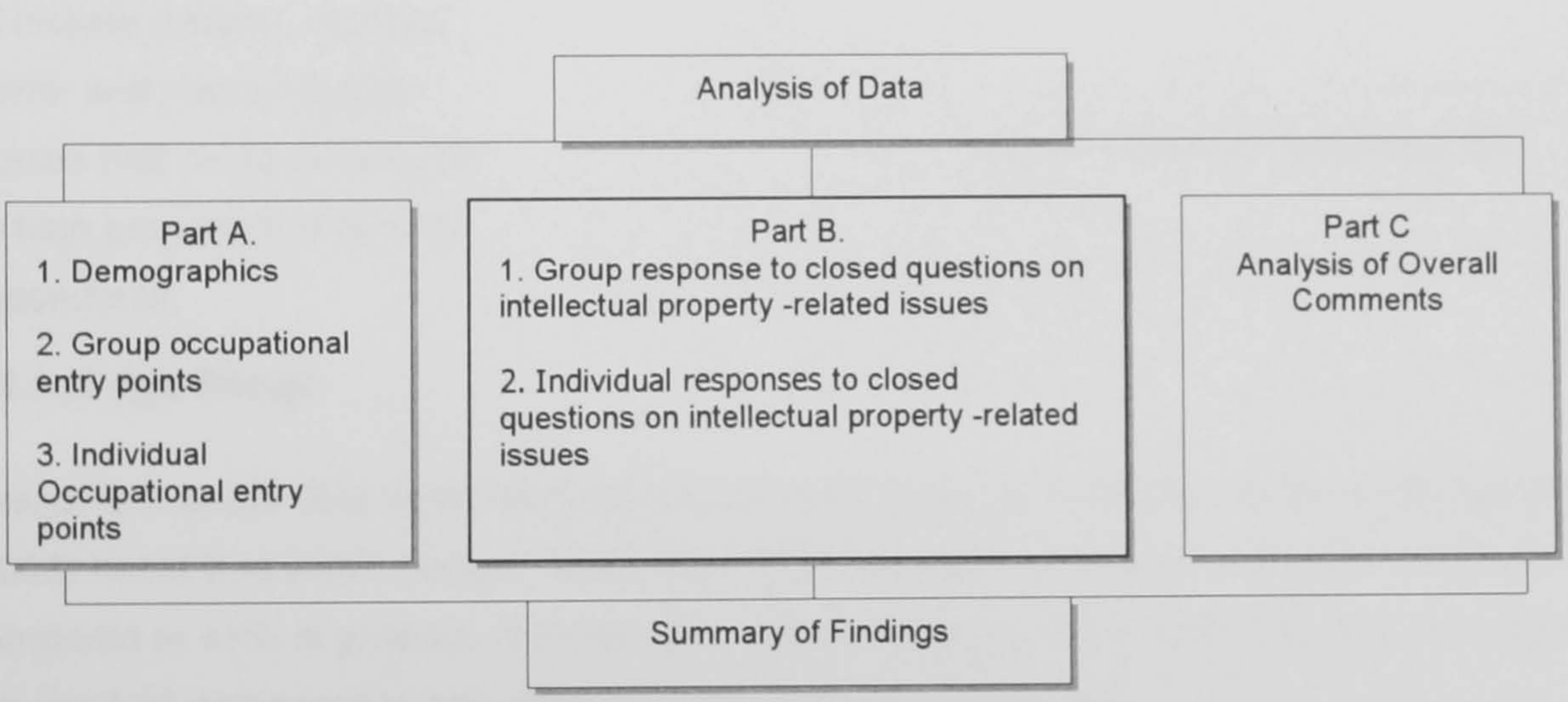

Figure 3.2: Structure of the Analysis of Data

3.3. Analysis and Interpretation of Data: Part A

Part A of the analysis of data was divided into the demographics, group and individual occupational entry points of the respondents plus a summary of findings.

3.3.1 Demographics

In a study[18] by Spilsbury (2002) he noted that that within the design sector: "70% of graphic designers were men and 30% were women". The percentage of women however ended to rise over "54% in product, clothing, interior and related design" and " those working in the industry believe that the proportion of female designers is higher than indicated by the data".

3.3.1.1 Gender

In contrast this survey found that 66% of the respondents were female and 34% male (See Figure 3.3).

The survey did not include any graphic designers, however it did include product, clothing, interior and related design courses that could account for the high proportion of female respondents.

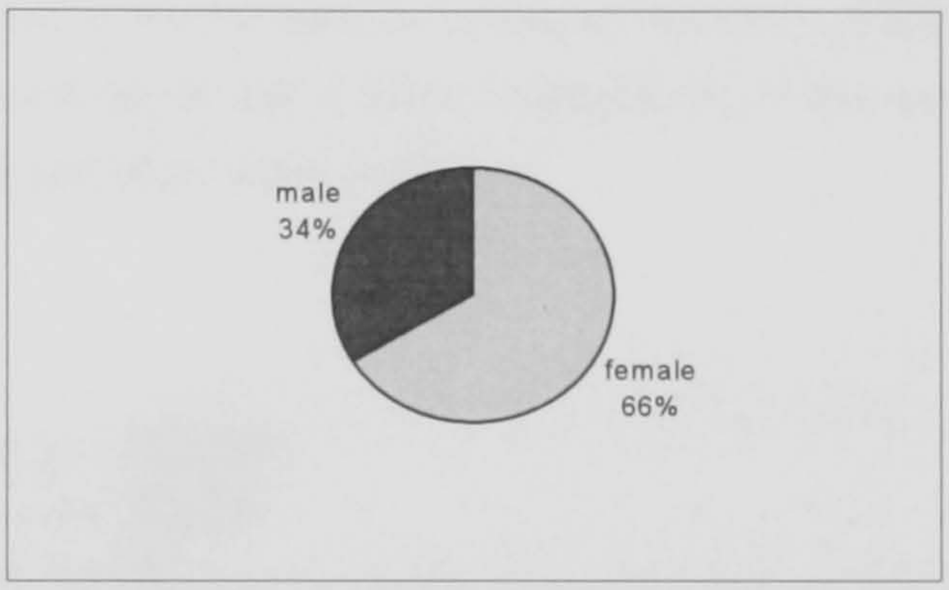

Figure 3.3 Gender of Respondents (%)

3.3.1..2 Age Range

Design is a sector that traditionally has relied upon a young workforce. In his study Spilsbury (2002) found that within design: "more than 52 % of graphic designers are aged less than 35, compared to 41% of product, clothing and related designers. Over a fifth of product designers are aged 50 compared to only eight per cent of graphic designers".

Similarly in this study 86% of the respondents were between the ages of 20-24 (See Figure 3.4).

Followed by 11% between the ages of 25-35 and 3% between the ages of 35-44.

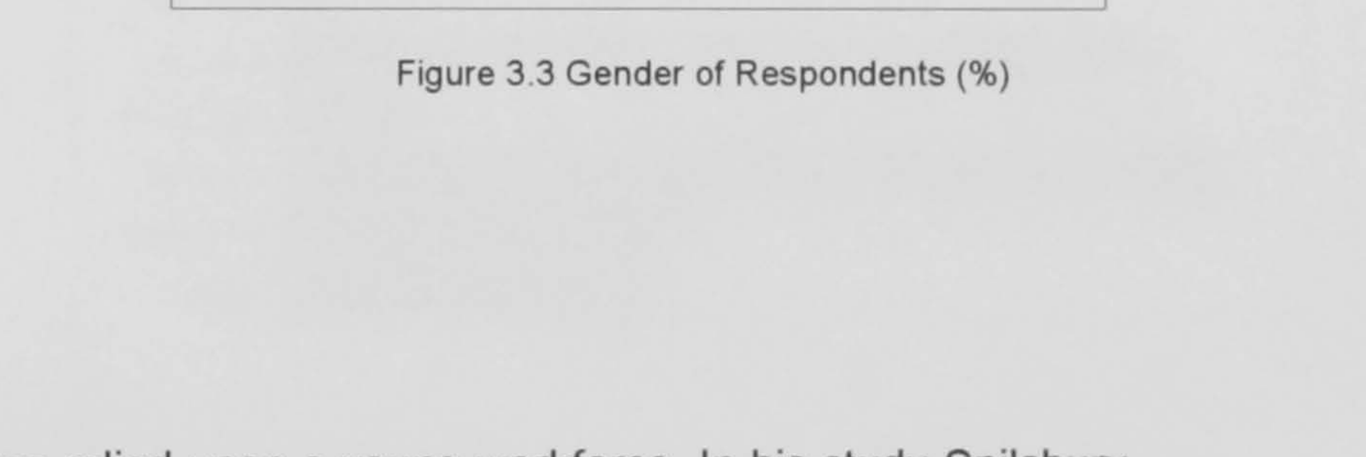

Figure 3.4: Age Range of Respondents (%)

[18] on the Assessment of Skill needs in the Media and Creative Industries (**ASMCI**).

The high percentage of respondents between the ages of 20-24 was understandable given that the survey looked at students in the final phase of university. The small group of respondents who did not fall within the average age group for undergraduates could represent the shift in learning patterns within society. Universities now offer life-long learning opportunities to mature students who want to either embark on a new career or learn new skills.

3.3.2 Occupational Entry Points

In a study[19] by Parker (1999) sponsored by the Department for Education and Employment he that found that: "the largest single occupational entry point to employment after qualifying in Creative Art and Design disciplines is Associate Professional and Technical Occupations[20] (38%)".

The need for design associate professional and technical staff according to Spilsbury (2002) can be attributed to: " the growth of the service sector and a major restructuring of the way that work is organised, dictated by technology and other external factors".

Similarly, this survey found that 32% of the respondents were considering entering into full-time employment contracts as design associate professionals 13% were interested in working as freelance designers, 12 % as buyers. And 29% of the respondents did not know what they wanted to do after graduating (see Figure 3.5).

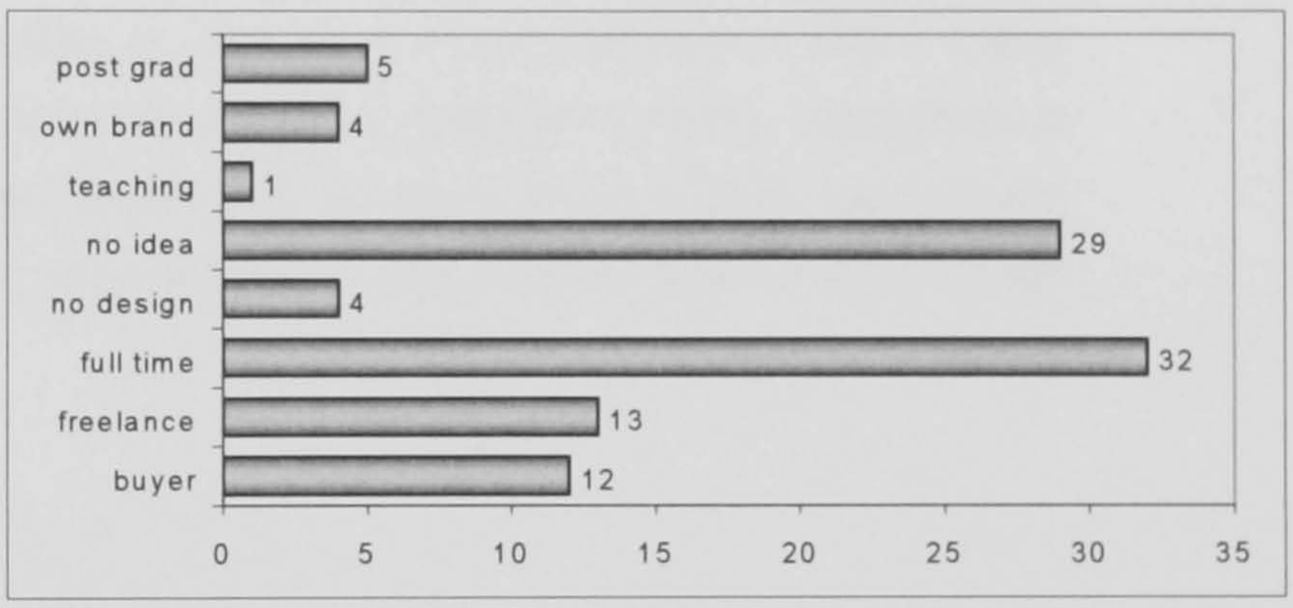

Figure 3.5 The Occupational Entry Points of respondents (%)

A minority were however considering undertaking a post graduate programme, owning their own brand, teaching or entering a profession that had nothing to do with design. The increase in employment opportunities available to design associate professionals may also account for the 13% of the respondents who were interested in working as freelance designers.

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[19] Skills Requirements in the Creative Industries

[20] The Standard Occupational Classification (**SOC**) description of designers and includes graphic designer – who use visual, audio, multimedia and other techniques to convey information for advertising, promotion or publicity purposes; and product designers, who plan direct, and undertake the creation of designs for new industrial and commercial products, clothing, interior, footwear and related fashion accessories.

The choice of working as a fulltime design associate professional by the respondents could also be to avoid flexible forms of employment that can be a source of insecurity and uncertainty (Rolfe 1998; O'Brain and Feist 1997). Spilsbury (2002) notes that the; "media and creative industries[21] are known to have, relatively high levels of non-traditional employment patterns, in that the flexible forms[22] of employment contracts are often in use".

Offshore manufacturing has also increased the employment opportunities of buyers within the retail industry. By contrast data from this survey found that 29% of all respondents indicated that they did not know what occupation they wanted to do after graduating. In a similar study[23] by Harvey and Blackwell (1999) they found that art and design graduates expressed concern over the relatively low level of contact with the world of work[24] during their training. Similarly, Spilsbury (2002) notes that there is a: "view young people in colleges are not aware of the variety of opportunities available, in publishing to designers".

The lack of work experience or exposure to the world of work may contribute to respondents not having a clear idea of the opportunities available to them once they graduate. Hence the high percentage of respondents who failed to identify a single occupational entry point after graduation. Similarly, in a study[25] by Whyatt et al (1997) in the cultural industries they found an inadequate level of skills training in: "commercial awareness, business management skills, and process development skills - the ability to take an idea and transform it into a viable product". According to the Creative Industries Mapping Document (1998): "graduates in design are often ill-prepared for the harsh realities of self employment. Design courses are popular but as numbers grow there is a perception in the industry that the bulk of the graduates are under-educated".

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[21] includes design, audio visual, photo imaging and publication , as well as, print and graphic communication

[22] Flexible form of employment contracts include: the use of long-term or short-term fixed contracts,

[23] Definitions and Reflections: Careers of British Art, Craft and Design Graduates

[24] Includes work placements, visiting lecturers, studio-design-based work for design.

[25] The Creative Capital: Cultural Industries, Young People and Regeneration in London.

3.3.3 Individual Occupational Entry Points

The analysis and interpretation of data on occupational entry points also included an analysis of the individual design courses. The analysis began by developing codes for each individual course (see Table 3.2).

Table 3.2: Individual design discipline codes

Code	**Course**
CD	contour design
CDP	textile, clothing retail and marketing
DM	design management and innovation
FD	fashion design and fashion buying
FW	footwear
ID	interior design
MJ	metalwork and jewellery
MM	multimedia
PD	product and furniture design
SD	surface decoration
TM	textile management

The codes were then used to identify the employment patterns for each individual design discipline (See Table 3.3).

Table 3.3: Employment destinations of respondents according to individual design disciplines (%)

Future Career (%)	CD	CDP	DM	FD	FW	ID	MJ	MM	PD	SD	TM
Freelance	38	0	0	13	0	8	14	50	13	13	0
Buyer	0	90	0	13	0	0	0	0	0	13	55
Post-Grad	13	0	0	13	0	8	0	17	4	0	0
Own Brand	25	0	0	0	0	0	0	0	4	0	9
Full-time	25	10	60	62	100	25	29	33	4	33	9
Teaching	0	0	0	0	0	0	0	0	0	0	9
No design	0	0	0	0	0	17	0	0	4	7	9
Do not know	0	0	40	0	0	42	57	0	71	33	9

Table 3.3 above seems to indicate that the most popular occupational entry point amongst all the different design disciplines was working as a fulltime design associate professional. The highest percentage of respondents interested in working as fulltime design associate professionals came from footwear design with 100%.

Followed by fashion design with 62% and design management with 60%. By contrast only 10% of respondents from clothing and design production, 9% of respondents from textile management and 4% from product design had intentions of entering fulltime employment.

The second most popular occupational entry point amongst all the different design disciplines in Table 3.2 was working as freelance design associate professionals. Multimedia design had the highest number of respondents considering freelance work with 50%, compared to only 8% of the respondents in interior design.

The third most popular occupational entry point amongst all the different design disciplines in Table 3.2 was working as a buyer. Clothing design and production had the highest number of respondents considering becoming buyers with 90% followed by respondents from textile management with 55%. By contrast only 13% of respondents in fashion design and surface decoration were considering becoming buyers. The majority of respondents interested in owning a brand came from contour design with 25% followed by textile management with 9%.

In addition, respondents from some of the individual courses seemed to have very clear ideas as to what they wanted to do after graduation. For example, in fashion design 13% of respondents were considering working as freelance designers or buyers and 62% were considering working as fulltime designers. By contrast, 71% of respondents from product design indicated they did not know what they wanted to do after graduation. Interestingly a small minority of respondents from textile management, surface decoration, product design and interior design indicated they wanted to enter a profession that had nothing to do with design after graduation.

3.3.4 Section Summary

The data helped to identify and group the most popular and least popular occupational entry points amongst the respondents. For example:

- the primary or most popular occupations included working either as a fulltime design associate professional, freelance design associate professional or buyer.
- the secondary or least popular occupations included working either as a brand owner, or teaching.

Overall the findings indicated the sample was fairly representative of the design sector in general. For example:

- the majority of respondents were under the age of 35
- the most popular employment entry point was either as a fulltime or freelance design associate professional

- only 4% of the respondents were interested in owning their own brand. This small minority may reflect the insecurity and uncertainty of employment patterns in the creative industries or lack of business or entrepreneurial skills.
- the high percentage of respondents who did not know what they wanted to do after graduation also indicated a low level of contact with the working world during their degree courses
- a small percentage of the respondents were considering either post-graduate studies, teaching or having nothing to do with design

3.4 Analysis and Interpretation of Data: Part B

Data analysis of Part B was divided into two sections. The first section looked at the overall group response from the closed questions. The second section was concerned with the responses of the individual degree courses to the closed questions. The objective of section one was to compare and contrast the overall knowledge of the respondents in order to catalogue their main areas of strengths and weaknesses which could contribute to the development of the model on design and intellectual property law.

3.4.1 Part B: Section One: Overall responses to Questions one to eight

The closed questions addressed eight key issues (see Table 3.4).

Table 3.4: Closed Questions

Code	Questions
Q1	Do you know how designers acquire copyright to a design?
Q2	Do you know how designers acquire the registered rights to a design?
Q3	Do you know what are the main rights of a copyright owner?
Q4	Do you know what are the main rights of the owner of a registered design?
Q5	Do you know what the 'infringement' of a design refers to?
Q6	Do you know what the 'assignment' of a design refers to?
Q7	Do you think the training you have had on intellectual property was sufficient?
Q8	Do you think intellectual property should be part of the design curriculum?

3.4.1.1 Overall Responses to Question One to Six

The overall results to questions one to six showed that the number of respondents who 'did not know' the response to the questions where consistently high (See Figure 3.6).

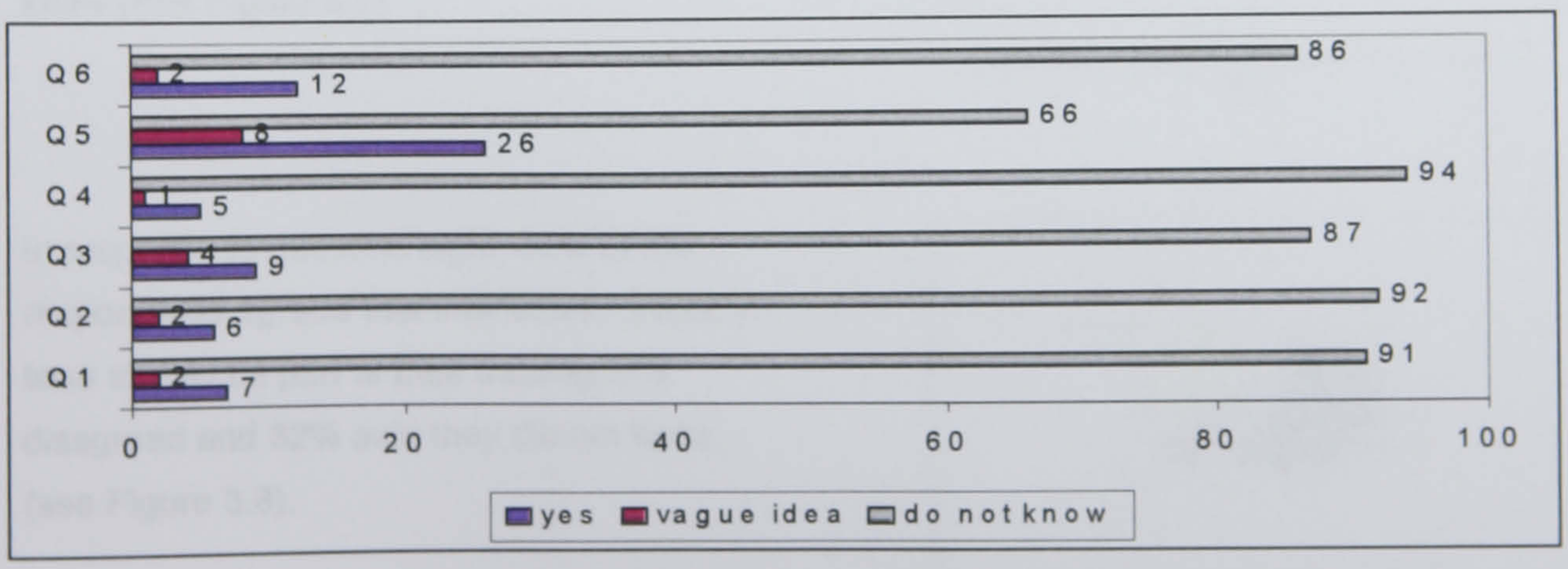

Figure 3.6 Total % of responses to Questions one-six

Figure 3.6, shows that over 90% of all the respondents indicated that they did not know how designers acquire copyrights. In addition, 87% of all the respondents indicated that they did not know the main rights of a person holding copyright in a design. The respondents also seemed less knowledgeable on issues relating to registered design rights. For example, 92% of the respondents indicated they did not know the process of acquiring registered design rights and 94% did not what the main rights of the owner of a registered design were.

The infringement of designs refers to when a third party makes use of design work protected by copyrights or registered design rights without the permission of the legal owner. The assignment of rights to a design refers to when the legal owner of a copyright or registered design right transfers or exchanges the rights to use a design to a third party either by accepting a fee or in a formal written agreement signed by both parties. In response to questions five and six over 20% of the respondents indicated they knew what the infringement of designs compared to only 12% who indicated they knew what the assignment of a design was. Overall the results seemed to indicate inconsistencies or gaps in knowledge amongst most respondents.

3.4.1.2 Overall Responses to Questions Seven and Eight

In questions seven and eight **(see Table 3.4 on page 70)** respondents were asked to rate: the training they had received on intellectual property during the course of their studies and to indicate if intellectual property should be part of their training.

In response to question seven, 12 % of the respondents indicated that they considered the training they had received during the course of their degree to be sufficient. 46% indicated that the training they had received was insufficient. 42 % indicated that they did not know (See Figure 3.7).

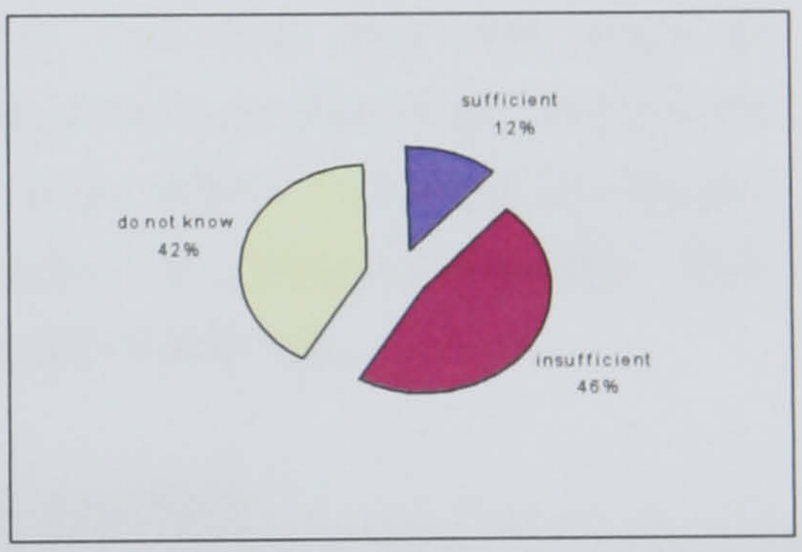

Figure 3.7: Overall responses to Question 7 (%)

In response to question eight, 60% of the respondents agreed that intellectual property laws should be part of their training, 8% disagreed and 32% said they did not know. (see Figure 3.8).

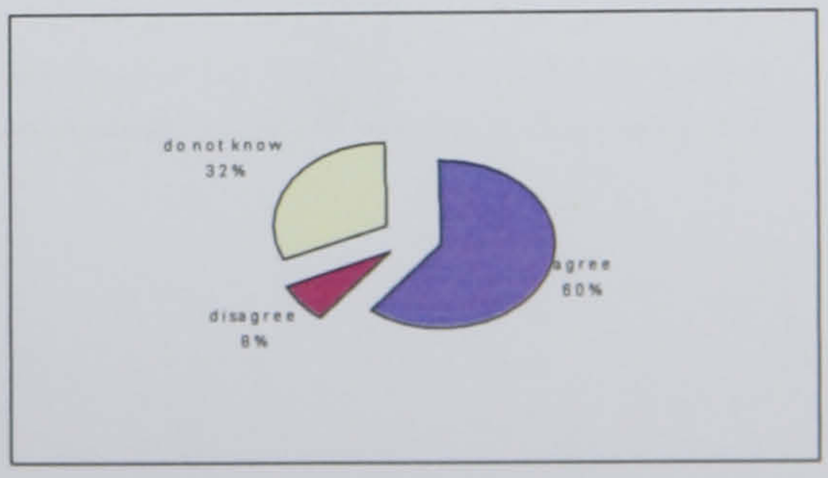

Figure 3.8: Overall responses to Question 8 (%)

The overall responses to questions seven and eight by the respondents reflected a concern amongst most of the respondents over the quality or relevance of information provided to them prior to leaving college evident also in the survey conducted by Woods et al (1999).

In the study by Woods et al on 'Copyright awareness and Training for Textile Design Protection', they carried out a telephone survey to find out the opinions of 132 respondents on the subject matter. The survey sample included 44 design firms and 88 firms involved in fabric supply for furnishing interiors based in the UK. In the survey they asked the respondents in the United Kingdom: what sources of information about copyright law they rated as very important? See Table 3.5.

Table 3.5: Sources of Information: Adapted from Woods et al (1999)

Sources of information	Number of respondents	%
Design experience within the industry	73	55.3
Other designers or people in the industry	63	47.7
Trade magazines and other publications	48	36.4
Talking to specialist lawyers	40	30
Trade Associations or professional bodies	36	27.3
College Degrees and diplomas	23	17.4
External seminars or conferences	19	14.4

In Table 3.5 over 40% of the respondents viewed learning from other designers within their industry who had work copied as a good source of information compared to 17.4% of the respondents who viewed college degrees and diplomas as a good source of information.

In the same survey Wood et al asked their respondents: How much more effort should be made to introduce knowledge of copyright laws to designers? Over 80% of the respondents indicated college degrees and diplomas could make more effort to providing information, followed by over 70% who indicated trade associations or professional bodies, trade magazines and other publications and in-house training (See Table 3.6).

Table 3.6: Sources of information: Adapted from Woods et al (1999)

Sources of information	Number of respondents	%
College Degrees and diplomas	108	81.8
Trade Associations or professional bodies	104	78.8
Trade magazines and other publications	102	77.3
In-house training	98	74.2
External seminars or conferences	88	66.7

3.4.2 Section Summary

In section one of Part B the overall findings showed that:

- the majority of the respondents seemed to have a slightly better knowledge of issues relating to copyright compared to registered designs
- the majority of the respondents seemed to have a slightly better knowledge of the infringements of designs compared to the assignments of rights to designs
- the respondents seemed to have a better knowledge of the infringements of designs and the assignments of rights to designs compared to issues relating to copyright and registered designs
- the question on the infringements of designs received the highest percentage of respondents who indicated they knew the answer
- the questions on registered design rights received the lowest percentage of respondents who indicated they knew the answer
- universities remain an important source of information but are failing to equip young graduates with the necessary training
- 46% of the respondents indicated they considered the training they had received to be insufficient
- 60% of the respondents agreed that information on intellectual property laws should be part of their training

The most significant finding was how the lack of sufficient formal training during the formative years of designer's impacts on their ability to manage intellectual property related issues once they enter the employment market. Overall the results seemed to indicate inconsistencies or gaps in knowledge amongst most respondents in relation to questions one to six. In addition, the majority of respondents seemed to favour more formal training during their degrees.

3.4.3 Section Two- Individual Responses to Questions one to eight

The most popular occupational groups amongst the respondents included working either as fulltime design associate professionals, freelance design associate professionals or buyers. The least popular occupations included working either as a brand owner, or teaching (see Figure 3.5 on page 65). Some of the occupational points indicated by the respondents will not require them to have any knowledge of intellectual property rules; for example those intending to continue postgraduate studies or have nothing to do with design. In contrast, the need to have some knowledge of the intellectual property rules increases for those respondents who indicated an interest in working in the most popular occupational entry points. The main purpose of section two in Part B was to examine the level of knowledge and views from each individual design discipline whose members indicated an interest in working either as fulltime design associate professionals, freelance design associate professionals or buyers (see Table 3.3 on page 67).

The individual design disciplines included: clothing design and production, contour design, fashion design, footwear design, interior design, metal and jewellery, multimedia design, surface decoration and textile management. Product design was not included because while 13% indicated they were thinking of becoming freelance associate design professionals over 71% of its respondents indicated they did not know what they wanted to do after graduation.

3.4.3.1 Responses to Questions One to Two

On the questions concerning the process of acquiring copyright and registered design rights. The findings showed that; the majority of respondents from clothing design and production, contour design, design management, fashion design, footwear design, interior design, metal work and jewellery, multimedia, surface decoration and textile management had a limited knowledge of how the rights were acquired (See Table 3.7)

Table 3.7: Methods of Acquiring Rights (%)

1.Copyright (%)	CD	CDP	DM	FD	FW	ID	MJ	MM	SD	TM
Yes	**25**	**0**	**20**	**6**	**0**	**0**	**14**	**17**	**7**	**0**
Vague idea	**0**	**0**	**0**	**0**	**0**	**8**	**0**	**0**	**0**	**0**
Do not know	**75**	**100**	**80**	**94**	**100**	**92**	**86**	**83**	**93**	**100**
2.Design Rights (%)	CD	CDP	DM	FD	FW	ID	MJ	MM	SD	TM
Yes	**0**	**0**	**0**	**0**	**0**	**0**	**14**	**17**	**13**	**0**
Vague idea	**0**	**0**	**0**	**6**	**0**	**0**	**0**	**0**	**0**	**9**
Do not know	**100**	**100**	**100**	**94**	**100**	**100**	**86**	**83**	**87**	**91**

In Table 3.7, over 20% of the respondents from contour design indicated they knew how copyrights are acquired compared to only 17% of the respondents from multimedia despite the predominance of copyrights in multimedia design. Interestingly, none of the respondents from footwear knew how copyrights are acquired and yet footwear design's primary source of rights comes from copyright protection of working drawings (Vad Lane-Rowley, 1999).

With regard to registered design rights, the data showed that only 17% of the respondents from multimedia design and 13% of respondents from surface decoration indicated they knew the method for acquiring the rights to a registered design. By contrast over 90% of the respondents from the other courses indicated they did not know.

Another significant set of responses were from the respondents from design management who have to manage all issues pertaining to the design process. On the question relating to copyright only a minority of the respondents expressed some knowledge. On the question relating to registered design rights all the respondents indicated they did not know.

3.4.3.2 Responses to Questions Three and Four

In response to questions three and four concerning the main rights allocated to copyright and design rights. The respondents also indicated a lack of knowledge on the main rights allocated to copyright and registered (See Table 3.8).

Table 3.8: Main Rights

3.Copyright (%)	CD	CDP	DM	FD	FW	ID	MJ	MM	SD	TM
Yes	**13**	**25**	**20**	**0**	**0**	**0**	**14**	**33**	**13**	**0**
Vague idea	**0**	**0**	**0**	**0**	**0**	**17**	**0**	**0**	**0**	**36**
Do not know	**87**	**75**	**80**	**100**	**100**	**83**	**86**	**67**	**87**	**64**
4.Design Rights (%)	CD	CDP	DM	FD	FW	ID	MJ	MM	SD	TM
Yes	**13**	**25**	**0**	**0**	**0**	**0**	**0**	**17**	**7**	**9**
Vague idea	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**7**	**0**
Do not know	**87**	**75**	**100**	**100**	**100**	**100**	**100**	**83**	**86**	**91**

In Table 3.8, above only 25% of the respondents from clothing design and production compared to 33% of respondents from multimedia indicated they knew the main rights of a copyright owner. In addition, 36% of respondents from textile management only had a vague idea, and over 80% of the respondents from surface decoration did not know. Interestingly all the respondents from fashion design and footwear indicated they did not know.

With regard to registered design rights, 25% percent of the respondents from clothing design and production knew the main rights of the owner, compared to only 9% of respondents from textile management. Surprisingly, none of the respondents from design management, fashion design, footwear design, interior design, metal work and jewellery or multimedia knew what the main rights of the owner of a registered design were.

3.4.3.3 Responses to Questions Five and Six

On the questions concerning design infringements and the assignment of rights to designs they were indications of some knowledge of the meaning of the terms amongst the individual design disciplines (See Table 3.9).

Table 3.9: Infringement and Assignment of Designs

5.Infringements (%)	CD	CDP	DM	FD	FW	ID	MJ	MM	SD	TM
Yes	**0**	**25**	**60**	**13**	**40**	**17**	**57**	**17**	**13**	**18**
Vague idea	**25**	**0**	**0**	**6**	**20**	**8**	**0**	**0**	**7**	**27**
Do not know	**75**	**75**	**40**	**81**	**40**	**75**	**43**	**83**	**80**	**55**
6.Assignments (%)	CD	CDP	DM	FD	FW	ID	MJ	MM	SD	TM
Yes	**13**	**0**	**0**	**38**	**0**	**33**	**0**	**83**	**0**	**9**
Vague idea	**0**	**0**	**0**	**6**	**40**	**0**	**0**	**0**	**0**	**0**
Do not know	**87**	**100**	**100**	**56**	**60**	**67**	**100**	**17**	**100**	**91**

In response to the question relating to the infringement of designs, Table 3.9 shows that over 40% of the respondents from design management, footwear and metal work and jewellery courses knew what it referred to. This compared to over 80% of respondents from fashion design, multimedia and surface decoration who did not know. In response to the question relating to the assignment of rights to a design, Table 3.9 shows the majority of respondents from multimedia indicated they knew what it was compared to surface decoration and textile management.

3.4.3.4 Individual Course Responses to Questions Seven and Eight

In contrast, results to question seven and eight showed marked differences and similarities in responses from each individual design discipline (See Tables 3.10)

Table 3.10: Training received

7.Training Received (%)	CD	CDP	DM	FD	FW	ID	MJ	MM	SD	TM
Sufficient	**0**	**0**	**40**	**25**	**20**	**17**	**29**	**17**	**0**	**9**
Insufficient	**25**	**100**	**0**	**38**	**40**	**42**	**0**	**66**	**40**	**55**
Do not know	**75**	**0**	**60**	**38**	**40**	**42**	**71**	**17**	**60**	**36**
8.Training Needs (%)	CD	CDP	DM	FD	FW	ID	MJ	MM	SD	TM
Agree	**13**	**50**	**80**	**75**	**80**	**42**	**71**	**83**	**53**	**55**
Disagree	**0**	**0**	**0**	**6**	**0**	**17**	**29**	**17**	**0**	**0**
Do not know	**87**	**50**	**20**	**19**	**20**	**42**	**0**	**0**	**47**	**45**

In Table 3.10, above 40% of the respondents in the design management degree course and 25% from fashion design had a favourable view of the training they had received compared to 17% of respondents from the interior design degree course. By contrast, over 60% of the respondents from multimedia and clothing design and production considered their training to be insufficient compared to 25% of the respondents in contour design. Interestingly, over 70% of the respondents from the contour design degree course, could not indicate whether the training they had received was sufficient or not compared to less than 40% of the respondents from fashion design and textile management.

In response to question eight the majority of respondents from the individual design disciplines agreed that intellectual property laws should be part of their training with percentages in favour ranging between 50-100%. By contrast only a small percentage of respondents disagreed with the highest dissent coming from multimedia with 17%.

3.4.4 Section Summary

In section two of Part B, the responses to questions one and two helped to catalogue to the inconsistencies or gaps in knowledge amongst the respondents from: clothing design and production, contour design, fashion design, footwear design, interior design, metal work and jewellery, multimedia design, surface decoration and textile management. For example, 25% of the respondents from contour design knew a method for claiming ownership of copyright and yet none of them knew the method for claiming rights to a registered design. Interestingly, registered design rights regulate the majority of contour design work.

The responses to questions three and four helped to catalogue inconsistencies or gaps in knowledge of the respondents when it came to the main rights of the owner of copyrights and registered design rights. For example, 36% of the respondents in textile management indicated they had a vague idea of the main rights of a copyright owner. This compared to only 9% of them who indicated they knew what the main rights of the owner of a registered design were. The responses to questions five and six also helped to catalogue inconsistencies or gaps in knowledge. For example, 38% of the respondents in contour design indicated they were thinking of becoming freelance designers yet only 13% of them indicated they had some knowledge of what the assignment of rights to a design referred to.

The inconsistencies or discrepancies in knowledge amongst the different design disciplines could be attributed to the focus or organisation of intellectual property-related training for the individual courses. Overall the findings seem to indicate that the majority of respondents interested in working either as fulltime design associate professionals, freelance design associate professionals or buyers had problems in identifying how copyrights or registered design rights are acquired. In addition, the respondents also had gaps in their knowledge relating to the main rights of a copyright or registered design owner, as well as the infringement of design and the assignment of rights to designs.

3.5 Analysis and Interpretation of Data: Part C

Part C was concerned with analysing the main themes emerging from all the respondent's comments relating to the closed questions. The process began with a set of coded charts developed for each theme. The codes provided a mechanism for labelling data in manageable bites for subsequent retrieval and exploration from the charts during the analysis of data. Each respondent's comments were then extracted from their original context and placed into the appropriate thematic category. All the data collected was then collated into a group chart for data analysis and interpretation (See Figure 3.9)

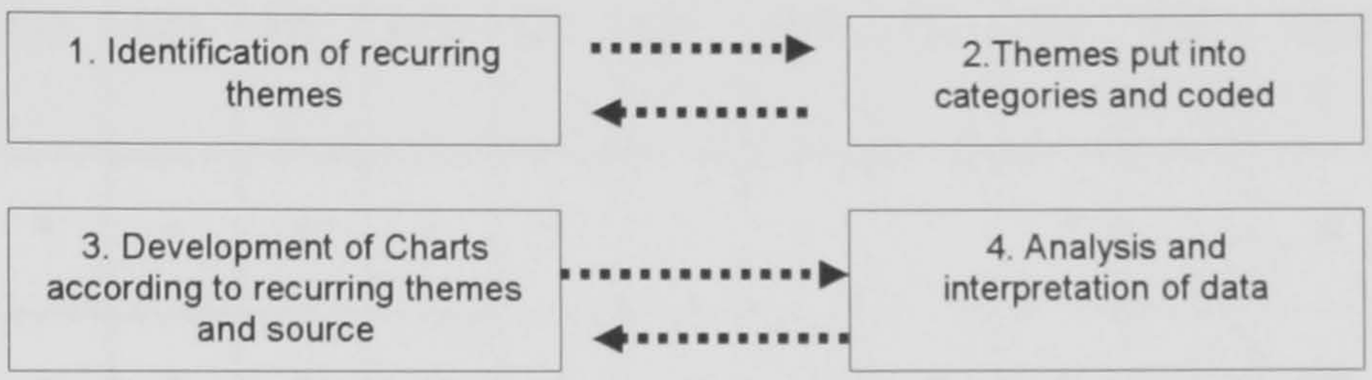

Figure 3.9: Interaction of Data Analysis

The recurring themes identified included issues concerning copyrights, registered design rights, infringement of designs, assignment of rights to designs, training received and training needs (see Table 3.1 and **Appendix F**).

Table 3.11: Theme Categories

Code	**Theme Category**
ARD	Assignment of rights to a design
CPR	The main rights of a copyright owner
ID	Infringements of rights to a design
MCR	Method of acquiring copyrights
MRDR	Method of acquiring registered design rights
NT	Need for training
RDR	The main rights of the owner of a registered design
TR	Training received

Recurring Themes

The analysis of the data on the comments showed that the most popular theme was the infringement of designs (ID) with 24% of all the comments. It was then followed by training received (TR) with 19% and the main rights of a copyright owner (CPR) with 17%. The assignment of rights to a design was the least popular theme amongst the comments with 5% (See Table 3.12)

Table 3.12: Recurring themes

Courses / Themes	CD	DM	FD	FW	ID	MJ	MM	PD	SD	TM	Total	**Course %**
ARD	*	*	1	1	1	*	1	*	*	*	**4**	**5**
CPR	1	1	*	*	1	2	2	3	1	3	**14**	**17**
ID	2	2	*	1	3	1	2	5	1	3	**20**	**24**
MCR	2	1	1	*	*	1	*	1	1	*	**7**	**9**
MRDR	*	*	1	*	*	1	1	2	*	1	**6**	**7**
NT	*	1	*	2	*	*	1	1	2	3	**10**	**12**
RDR	*	*	*	*	*	*	1	3	1	1	**6**	**7**
TR	3	*	1	2	2	2	*	5	*	*	**15**	**19**
Total	**10**	**6**	**5**	**7**	**9**	**9**	**10**	**24**	**7**	**13**	**82**	
Theme %	**8**	**5**	**4**	**6**	**7**	**7**	**8**	**20**	**6**	**11**		

Interestingly, the highest percentage of comments came from product design with 24%, followed by textile management with 13% and interior and multimedia design with 10% each (see Figure 3.10). The least number of comments came from fashion design with 5% of the comments.

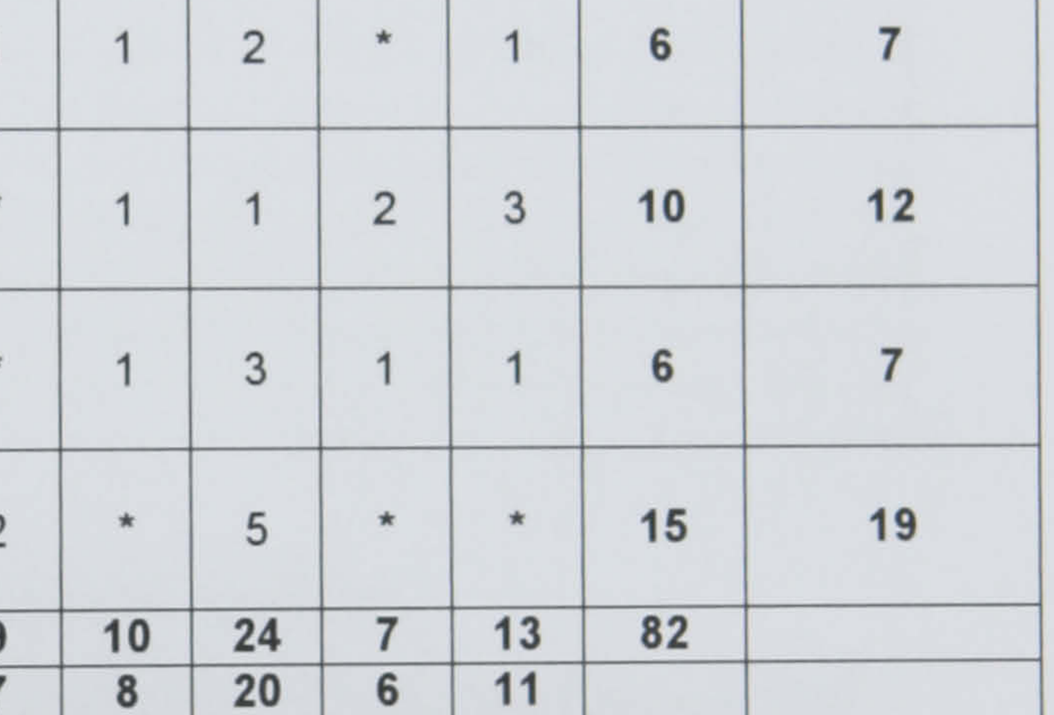

Figure 3.10: Percentage of comments by individual design disciplines

Patterns in Knowledge, Negative and Positive Comments

The final table for analysis and interpretation of the data was divided into the thematic categories for the number of comments and overall percentages for each theme (see Table 3.13)

Table 3.13: Overall theme total and percentages

Theme	Theme Total	Theme %
ARD	4	5
CPR	14	17
ID	20	24
MCR	7	9
MRDR	6	7
NT	10	12
RDR	6	7
TR	15	19

The thematic categories were then re-coded and put into a group table **(see Appendix G)** in order to identify any areas of needs or expectations (see Table 3.14).

Table 3.14: Codification of patterns in knowledge, negative and positive comments

Code	Comment
CR	cannot remember
CTR	critical of training received
GC	general comment
QY	query
RT	recommendations on training
SLK	shows lack of knowledge
SSK	shows some knowledge

Table 3.15: Patterns in Knowledge, negative and positive comments

Code	ARD	CPR	ID	MCR	MRDR	NT	RDR	TR	Total	%
CR		1	4				1		6	7
CTR								7	7	9
GC						3		8	11	13
QY			2		1				3	4
RT						7			6	7
SLK	4	1	3		1		1		10	12
SSK		12	11	7	4		4		38	47

The results showed that over 40% of the comments indicated some knowledge compared to 12% who showed a lack of knowledge (see Figure 3.11).

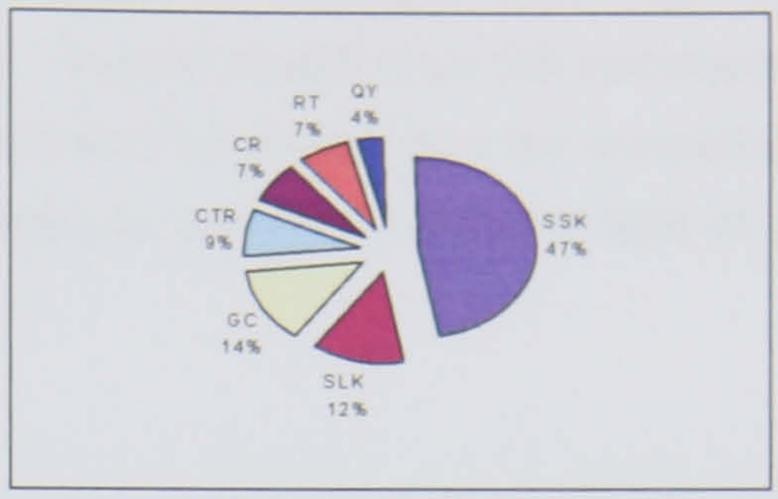

Figure 3.11: Patterns in knowledge (%)

In addition, a small minority of the comments were either critical of training received, focused on recommendations for training, or indicated the respondents had a vague idea but could not remember what certain terms meant. Only 4% were queries on the meaning of 'infringement' and 'method of registered designs'. The results on patterns of knowledge seemed to indicate a number of things. First, over 40% of the respondents used the commentary section as an opportunity to articulate their knowledge of the intellectual property rules that apply to them. Second, 12% of the respondents used the commentary section as an opportunity to articulate their concerns and views regarding the intellectual property rules that apply to them. In addition, some of the comments the respondents made also focused on general rather than specific areas. Furthermore some of the respondents also used the commentary section to express their dissatisfaction with the training they had received during their degree courses concerning intellectual property rules.

3.5.1 Infringement of Designs

The overwhelming impression was that the majority of the respondents knew what it meant. As some of the respondents wrote:

"I think infringement is the terminology for doing something which is not allowed and has a negative impact on something i.e. infringement of rights" (TM/SSK)
"someone copies your work without permission" (MW/SSK)
"infringement is when another designer imitates some of your work" (ID/SSK)
"to take over the right of another person" (DM/SSK)

A minority of the respondents however showed a lack of knowledge or could not remember. For example, some respondents noted:
"we have not been taught it and also I have made no endeavour to find out" (PD/SLK)
" I have heard of the term being used but I am not exactly sure I know what it means" (ID/SLK)

Others queried the meaning of the word infringement. As one respondent wrote: "*what does this term mean, copying?" (FW/QY).*

The least confident group of respondents about the infringement of designs came from the footwear, surface and interior design degree courses. Overall implicit from the comments was the view that there is a culture within the degree courses that encourages the ownership of work. The inconsistencies or gaps in knowledge however seems to indicate a lack of a clear and articulate discourse on the subject matter.

3.5.2 Training Received

The majority of comments were either critical of the training they received on intellectual property or used the comments to express their own personal views on the subject matter. As one respondent observed: *"I feel the teaching of intellectual property is particularly relevant to the nature of our course. I feel that it is inadequately covered" (CD/CTR)*

Another of the respondents noted that: *"we had no information on intellectual property. It would have been really helpful to have a section of the course just on information like this". (MW/CTR)*

The most critical group of respondents came from product design and contour design. A recurring theme was how their lack of training had limited their ability to respond to questions with confidence. For example some of the respondents wrote:

"just looking at the terms referred to I have realised I have no idea" (PD/SLK)
"it sounds interesting but I do not know enough about it to pass a judgement" (PD/SLK)

Overall implicit from the comments was a concern from the majority respondents that the level of training they had received was inadequate and could be improved. The criticism of the respondents from product design maybe unwarranted for a good reason. Product design unlike the other courses tends to gravitate between technical innovation and 'eye appeal' projects and maybe the focus of the product degree course was on training their students on issues related to patent laws rather than copyright or registered design rights.

3.5.3 The Main Rights of a Copyright Owner

The main right of a copyright owner is to transfer or exchange work for a fee or for free to a third party. In cases of the unauthorised transfer of work the copyright owner can seek legal recourse for either compensation or removal of the work from the public domain. Overall the majority of respondents had some knowledge of the main rights of a copyright owner.
Similar, to the theme on infringements of designs the respondents had problems articulating their knowledge in a clear and simple manner. An example, of this contradiction included comments by some of the respondents who wrote:

"as a guess money is paid by people who use your ideas"(SD/SSK)
"other designers are not allowed to imitate your work or you could take them to court"(ID/SSK)
"you can own the design and can take action for any copying"(MW/SSK)
"you have the right and control to the design and your permission is required in order to use your design"(DM/SSK)

Implicit from the comments was the view that there is a culture within the degree courses that encourages the ownership of work. It seems however the focus is on encouraging legal action as a means of control over rights which can be quite expensive rather than developing cost effective strategies for the proper management of rights. For example, by keeping a record of design documentation generated during the design process, marking work with a copyright mark and ensuring you own the copyright to any design prior to any transfer of work.

3.5.4 Need for Training

The majority of comments were supportive of the need for the inclusion of training for design undergraduates. The comments expressed included mainly recommendations and general comments on the usefulness of training. One of the respondents observed: *"intellectual property should be taught as I do not understand anything about this, and I feel I should by my 3rd year before I go out to work" (FW/GC)*

The general tone of the comments suggested that the respondents were in agreement for more training especially with reference to their future employment prospects. As one of the respondents wrote: *"it would be useful so no laws can be broken and you can show more capabilities to your employer / interesting and necessary to learn if you are going into a design career"(TM/RT)*

3.5.5 Method of Acquiring Copyright

The most popular methods for acquiring copyright listed by the respondents was either by posting a copy of work in a self-addressed envelope or the signing and dating of work. For example, according to some of the respondents a method of acquiring copyright was by:

"dating and signing your work"(DM/SSK)
"post a self-addressed envelope to yourself and do not open envelope" (FD/SSK)

Copyrights are allocated to design knowledge when it is first recorded. The respondents seemed to have knowledge of how to ensure they protect their copyright for example by signing or dating work rather than how they acquire them.

3.5.6 Method of Acquiring Registered Design Rights.

Registered rights to a design can only be acquired by the formal registration of work at the Patent Office. In contrast to the comments on copyrights, the respondents seemed to have some knowledge of how registered design rights are acquired. For example some of the respondent noted that the method was to:

"apply to the patent agency and pay for rights (TM/SKK)
"you have to register at the Patent Office in London" (MM/SSK)
"registering your work" (MW/SSK)
"is it referring to patents? (FD/QY)

Overall the majority of respondents who made a comment had an idea about the method used for acquiring registered design rights. Others however expressed a lack of confidence as to what registered design rights referred to or had heard about it but did not know enough to make an informed judgement.

3.5.7 Assignment of Rights to a Design

The respondent's comments demonstrated a lack of knowledge on the subject matter.
As some of the respondents who made a comment observed:

"I do not understand the term assignment in the context of copyright"(MM/SLK)
"I *have heard of the word but do not know what it means" (FD/SLK)*
"I do not understand what assignment of rights to a design means so I would not know what to do"(ID/SLK)

The vast volumes of creative content on the internet, allows people to transfer work belonging to other people by downloading written, printed, broadcast materials, images or fabric patterns. Interestingly few of the respondents who made a comment did not have any knowledge on the assignments of rights to designs.

3.5.8 The Main Rights of the Owner of a Registered Design

The main right of the owner of a registered right is to transfer or exchange work for a fee or for free to a third party. In cases of the unauthorised transfer of work the owner can seek legal recourse for either compensation or removal of the product from the public domain. Overall some respondents had a basic idea and others did not have a very clear idea. As some of the respondents observed:

" *you have the say so with regards to who ever uses your designs and can sue anybody using you designs, logos, name etc"(TM/SSK)*

"nobody can reproduce or copy my work directly without my consent" (PD/SSK)

"I have heard about it but not enough to understand" (PD/SLK)

3.5.9 Section Summary

The respondents used the commentary section as an opportunity to articulate their concerns and views regarding the intellectual property rules that apply to them. The respondents also used the commentary section as an opportunity to articulate their concerns or lack of knowledge of the intellectual property rules that apply to them:

- over 40% of the respondents who made any comments showed some working knowledge of the issues relating to the infringements of designs and the rights of a copyright owner.
- 12% of the respondents seemed to have problems with issues relating to the assignments of rights and the methods of acquiring both rights to registered designs and copyright.
- 9% of the respondents were critical of training received and supported the need for more formal training

3.6 Chapter Summary

- The age, gender of the respondents, coupled with the increase of employment opportunities seems to indicate the respondents surveyed will be able to enter their intended professions. Traditionally designers have managed the rights attached to their knowledge poorly because according to Chartrand (1996) they also have a poor understanding of the property rules that apply to them. As one respondent in the survey observed: *"I have had no training, have no idea and I am not confident about talking about my ideas"(PD/SLK)*". The findings of the survey offered some valuable knowledge that helped to catalogue the main strengths and weaknesses of the design graduates knowledge of copyright and registered rights prior to entering the employment market.

The survey showed:

1. The majority of the respondents seemed to have a better knowledge of the infringements of designs compared to the assignments of rights to designs.
2. The respondents seemed to have a better knowledge of the infringements of designs and issues relating to copyright compared to the assignments of rights to designs and registered designs.
3. The design graduates surveyed seemed to lack confidence in articulating the complexities of copyrights and registered rights in a clear and coherent discourse.

4. The majority of the respondents would like to become either buyers, fulltime or freelance design associate professionals but seemed to lack a knowledge of the basic principles of copyright and registered design rights that regulates their work as professionals.
5. The survey helped in the identification of other information sources commonly used by professional designers and in cataloguing the inconsistencies or gaps in knowledge.
6. The comments allowed the researcher an opportunity to understand the respondent's interpretation of their experiences and understanding of intellectual property. In the construction of the model the 'language' used will need to take account that not all designers are familiar with the language of intellectual property. For example the use of transfer or allocate in place of assignment.
7. Another significant finding from the survey was the findings from the comments that showed that only just over 40% of the respondents had some knowledge of the issues relating to intellectual property. This probably means that to some extent the respondents were either being provided with limited information or the training was not considered an important part of their courses.

In addition, the inconsistencies and discrepancies in knowledge amongst the respondents concerning intellectual property could be an indication of:

- either the linguistic barrier between design and the legal rules that regulate the majority of their work
- or the need for information or tools that could assist them in articulating the knowledge they already have into a clear and coherent discourse

Though the findings of the survey cannot be generalised they seem to indicate that the majority of students found the application of intellectual property rules to what they do to be complex. There is therefore a clear need for a model of design and intellectual property that can help to explain how designers acquire copyright and registered design rights.

4. Interviews of Information Sources

Based on the results of the initial primary and secondary research a series of interviews were undertaken to ascertain the main problems facing practising designers in the management of the intellectual property rules that apply to them. The methodology used in the process included: the development of an interview list, selection of sample, data collection, analysis and interpretation of data and overall summary of findings.

4.1 Introduction

The aim of the proposed model is to contribute to explaining the interaction between design and intellectual property rules to designers. The literature review helped in clarifying the functions of intellectual property rules within the design sector as well as identifying the problems designers have in managing their rights. In addition, the design student survey at De Montfort University helped: in cataloguing the knowledge, experiences and opinions its design students had of intellectual property just prior to entering the employment market. Secondly, in identifying the main sources of information utilised by textile designers when seeking information or advice on design infringements due to logistical reasons and limited resources it was not possible to undertake a survey on the views of practising designers currently working within the design sector. Wood et al's (1999) study, therefore provided the researcher with an alternative group of respondents that also had knowledge of the problems practising designers encounter regarding their rights (see Figure 4.1).

According to Spradley (1980) people use cultural knowledge to interpret and evaluate situations or artefacts. In addition, he argues that cultural knowledge can be divided into explicit knowledge or tacit knowledge. Explicit cultural knowledge can be communicated by language in a direct manner to allow us to make inference with greater ease.

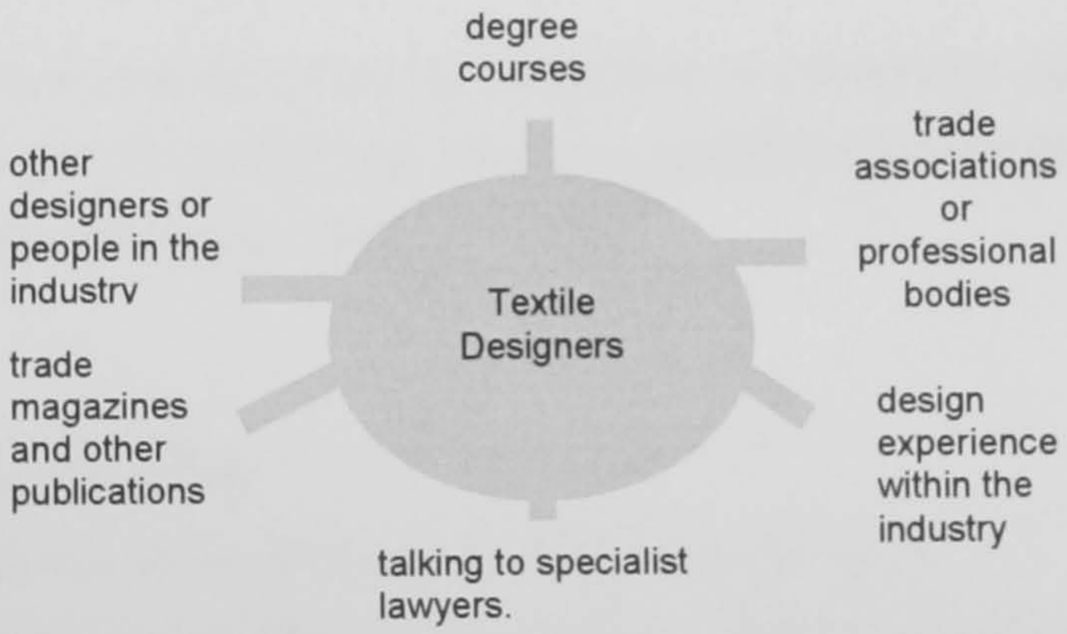

Figure 4.1 Design and its Sources of Information: Adapted from Wood et al (1997)

Tacit cultural knowledge is less direct and is revealed through casual comments or interviews. The interviews were therefore considered an important method in soliciting both the explicit and tacit views of the respondents.

As a result a series of interviews were undertaken with some of the main sources of information identified in Figure 4.1 and included a mix of designers with experience in working in the design industry, trade associations and producers.

4.1.1 Aims and Objectives

The purpose of the interviews was to compare and contrast the cultural knowledge of the types of respondents identified in Figure 4.1 in order to establish by inference how their views varied or were similar to the findings catalogued by the literature review and design student survey. By adopting this methodology it was hoped the data could then be used to guide the development of the proposed model on design and intellectual property.

4.1.2 Method of Data Collection and Analysis of Data

The main method for data collection was the use of a semi-structured interview format and qualitative methods for analysis of data (see Figure 4.2).

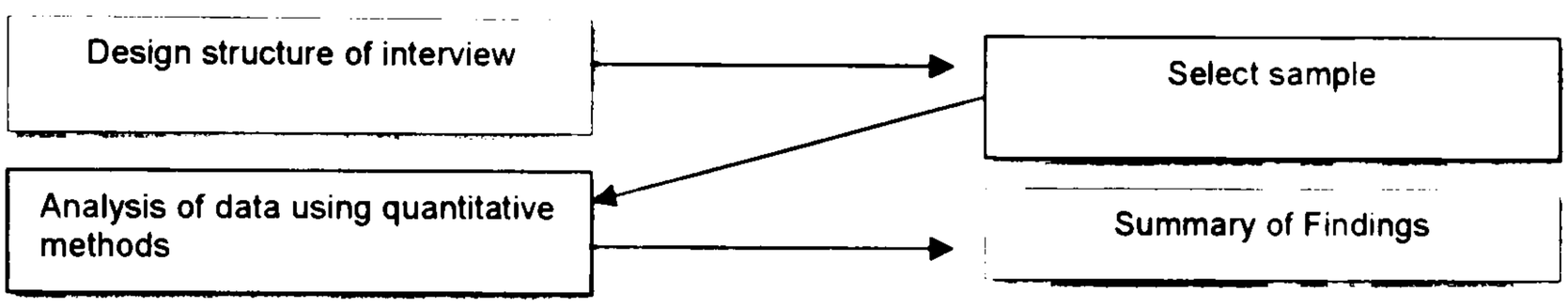

Figure 4.2 Data Collection methods and Analysis of Data

In the semi-structured interviews a pre-coded list of the key problems or knowledge needs identified by the literature review and student survey was used as a prompt or a checklist to give some structure and order to the interview (See Table 4.1 below).

Table 4.1: Interview Checklist

Code	**Information need**	**Key Problems**
AR	*Assignment of Rights*	Improve information on the assignment of rights
CMC	*Collective Management of Copyrights*	Improve information on organisations offering information and advice to designers
DA	*Design Agents*	Improve information on the role of design agents in safeguarding, copyrights and design rights
DM	*Data Management*	Improve management of data during the design process for copyright and design right purposes.
LL	*Language*	Adaptation of complex legal language
TN	*Training*	Improve training of intellectual property rules in design education.

McCracken (1999) notes that prompts allow the investigator to cover all the terrain in the same order for each respondent and to establish channels for the direction and scope of the discourse and data collected. The final analysis of data was undertaken using a grounded theory approach primarily because it provided a flexible framework to sort out the ideas, issues and themes emerging from the raw data for analysis and interpretation **(see Page 21 for more information on grounded theory).**

4.2 Sampling Methods

The sample group was selected using two main methods. The first group of respondents was selected specifically for the purpose of the study because of their expertise or experience as providers or users of information. For example, information on 'Useful Organisations' was downloaded from the Design Council website in order to identify organisations that offer advice to the design sector on matters relating to intellectual property. The first sample group selected using this method comprised: the trade associations, academic and design centres, specialist law firms, patent agents, as well as art and design organisations set-up to combat copying and practising designers. The respondents from the first sample group were interviewed by the researcher and considered by the researcher as primary sources of information.

The second group of respondents was selected by asking respondents in the first sample group to name others who may be of help as respondents (snowballing). One of the respondents recommended the use of interview transcripts from the face to face interviews undertaken by Dickson et al (1997) in their study on Design Protection Practices in the UK Textile Industry. The respondents selected from the second sample group were therefore considered secondary sources of information because the data they provided was not collected during the course of this study.

4.2.1. Trade Associations: Primary Sources

The first group of primary sources contacted included the Design Council and the Chartered Society for Designers. A call was made to the information desk for each organisation in order to identify an appropriate informant or gatekeeper (See Table 4.2 below).

Table 4.2: Trade Associations

code	Trade Associations	Remit	Contact	Result
IS1DC	**The Design Council. UK**	The main design promotion body in the United Kingdom	Information Desk	Unable to participate in interview
IS1CSD	**The Chartered Society for Designers (CSD)**	Design body based on annual membership that includes legal advice to members on issues pertaining to intellectual property	Legal Advisor	No reply interview.

Marshall and Ross (1999) argue that the problem with elite interviewees is that it is often difficult to gain direct access to them because they are usually elusive and busy people. The Design Council's declined to participate in the interviews because they said that it was not part of their remit therefore the request for an interview was therefore withdrawn. No reply was received from the Chartered Society for Designers for a request to participate in the interview.

4.2.2. Academic Institutes and Design Centres: Primary Sources

The second group of primary sources contacted included universities or design centres with a track record of working or promoting the relationship between design and intellectual property. Brunel University was chosen because it had carried out research specifically within the design sector on issues pertaining to intellectual property.

Also included was the Ann Sutton Foundation, based in Arundel that offers post-graduate textile design students a two year fellowship to enable them to continue with their research and gain work experience. The institute was deemed to be of importance because it also organises training on intellectual property-related issues for its research fellows. The Royal College of Art was contacted after the researcher was invited to attend an in-house seminar offered to students at the institute on the relationship between design and intellectual property. The college also has a business unit that provides advice and information on intellectual property to students (See Table 4.3 below).

Table 4.3: Academic and Design Centres

code	Academic and Design Centres	Remit	Contact	Result
IS2ASF	**The Ann Sutton Foundation (ASF)**	Established in 2001, the Ann Sutton Foundation was set up to raise both the profile and quality of woven textiles within the industrial sector.	Director	Agreed to interview
IS2RCA	**Royal College of Art**	Leading Institute in the United Kingdom for postgraduate studies in art and design.	Prue Bramwell	Referred researcher to liaison officer
IS2BU	**Brunel University Division of Management Studies**	Research on the design management of copyright in the textile industry in Europe/ UK/ America	Research Fellow and co-author	Agreed to the interview

4.2.3. Design Right Organisations and Law Firms: Primary Sources

The third group of primary sources contacted included the Patent Office, specialist law firms, patent agents, as well as art and design organisations set-up to combat copying. In the United Kingdom the Patent Office is responsible for the establishment and maintenance of the national framework for the property rights that regulate the work of designers. The Patent Office position means that it is an important source for designers concerning issues related to design registration and copyright. Other sources of information included specialist law firms, patent agents, as well as art and design organisations set-up to combat copying and encourage the collective management of rights (See Table 4.4 below)

Table 4.4: Design Right Organisations and Law Firms

Code	Law firms/ Agents and organisations	Remit	Contact	Result
IS3DO	Design Office	Design office in the Patent Office. Services include registration of designs, policy and resource centre	Information Officer	Agreed to interview
IS3CIPA	Chartered Institute of Patent Agents	Give details of agents licensed to negotiate the registration of patents, trade marks and designs.	Patent Examiner and Royal College of Art :Liaison Officer	Agreed to interview
IS3DACS	Design and Artists Copyright Association (DACS)	Gives advice and checks on infringements and collects reproduction fees: main target group the visual arts.	Information Desk	Unable to participate in interview

Code	Law firms/ Agents and organisations	Remit	*Contact*	Result
IS3ACID	Anti-Copying in Design (ACID)	Set-up to combat copyright and design right infringement. Offers free legal advice and a design registration service.	Chief Executive	Agreed to interview
IS3BIF	Biffra	Design and Copyright law firm based in London: Information desk was reluctant in providing a contact name	Information Desk	No response to request
IS3EPC	Eric Potter Clarkson	Provide a comprehensive service in patents, trade marks, designs, copyright and other as aspects of intellectual property	Patent Lawyer	Agreed to interview

4.2.4 Designers

The fourth group of primary sources contacted included two practising textile designers. The director at the Ann Sutton Foundation recommended the inclusion of its research fellows who had received some training and advice on intellectual property while at the centre from Biffra (See Table 4.5 below).

Table 4.5: Design Practitioners

code	Design Practitioners	Remit	Contact	Result
DP1	**The Ann Sutton Foundation**	Weave designer for home furnishing and clothing. Post-graduate Royal College of Art	Design fellow	Agreed to interview
DP2	**The Ann Sutton Foundation**	Weave designer for architectural fabrics Post-graduate Royal College of Art	Design fellow	Agreed to interview

4.2.5 Design-related Firms: Secondary Sources

The transcripts selected from the study on Design Protection Practices in the UK Textile Industry by Dickson et al (1997) were included because they were considered sources rich in information from the producer and designer's perspectives on the relationship between design and intellectual property. A code was applied to each secondary source that comprised of the group code and the origin or source of information (See Table 4.6 below).

Table 4.6: Design-Related Firms

code	Textile Industry	Remit	Contact	Result
DRF1	**Producer A**	Designer brand for upmarket fabrics Key informant: Owner	Brunel University	Provided transcript of producer A
DRF2	**Producer B**	Exclusive fabric label for the top end of the fabric market Key informant: Studio Manager	Brunel University	Provided transcript of producer B
DRF3	**Producer C**	Home furnishing brand Key informant: Manager	Brunel University	Provided transcript of producer C
DRF4	**Producer D**	Internationally known fabric label Key informant: Design Director	Brunel University	Provided transcript of producer D

4.2.6 Final Sample Group

The final sample group of respondents was then pre-coded into three distinct groups: information sources, designers and design-related firms in order to facilitate data management during and after the interviews (See Table 4.7 below).

Table 4.7: Final sample groups

Code	Information Sources	No	Code	Designers	No
IS1	Trade Associations: primary sources	2	DP	Practitioners: primary sources	2
IS2	Academics: primary sources	3	**Code**	**Design-related Firms**	**No**
IS3	Design Right Organisations and Law Firms: primary sources	7	DRF	Textile Industry: secondary sources	4

The main studies on the relationship between design and intellectual property by Dickson et al (1997) have tended to focus mainly on the textile industry because of the emerging role of intellectual property rules in global trade. In addition, the Ann Sutton Foundation focuses mainly on the integration of design knowledge within the textile industry and as a result all the design practitioners and design-related firms interviewed came from the textile design industry.

4.3 Distribution and Collection

All the interviews with the primary sources took place over a period of one month (June 2003). In the preliminary phase each respondent was contacted by telephone to explain the aims and objectives of the interviews.. A list of the recommendations was then e-mailed to each participant to ensure they were aware of the themes, found them to be relevant and were willing to answer questions on the list of recommendations.

Due to the need for interaction between the interviewer and informant it is paramount according to Frey and Oishi (1995) that the researcher establish a good rapport. This includes according to McCracken (1988) observing both the formal and informal rights of the respondent such as informed consent, right to privacy and protection from harm.

Limited resources, the busy schedules of the respondents and the need to avoid disrupting the shared working environment of a number of the respondents meant that some of the interviews had to be conducted by telephone. In the telephone interviews verbatim notes were taken by the researcher and immediately transcribed after the interview. Ad-hoc interviews were then conducted over the phone to ensure the final transcripts were an accurate reflection of their comments. In the face to face interviews a tape recorder was used and the researcher also took notes. The order of questions was kept the same for all the interviews. At the end of each interview the respondents were given the opportunity to rank the recommendations in the order that they judged them to be of priority.

4.4 Method of Data Analysis

Time was an important factor for each of the key respondents, so care was therefore taken to accommodate their needs with regard to date and time, and establishing a fixed length for the interviews. The interviews varied between 1-2 hours depending on the availability of the respondent. Data from the interviews was then transcribed into text documents for analysis. According to Miles and Huberman (1994) there is a close connection between coding and the generation of concepts and codes should be seen as the building blocks for emergent rather than pre-specified concepts. The researcher used the coding system from the grounded theory approach as a method for filtering, grouping and categorising concepts for analysis (see Appendix H). The process was divided into three main stages.

4.4.1 The Coding of the Sample Group

In the first phase of the data analysis process the respondents were re-coded into four distinct groups in order to facilitate identification of the origin of information (See Table 4.8 below).

Table 4.8: Group Codes

Code	**Information Sources (IS1)**	**Code**	**Designers Practitioners (DP)**
IS1ASF	Ann Sutton Foundation	DP1	Practitioner
IS1BU	Brunel University	DP2	Practitioner
Code	**Information Sources (IS2)**	**Code**	**Design-related Firms (DRF)**
IS2ACID	Anti-Copying in Design	DRF1	Owner
IS2CIPA	Chartered Institute of Patent Agents	DRF2	Studio Manager
IS2DO	Design Office	DRF3	Manager
IS2EPC	Eric Potter and Clarkson	DRF4	Creative Director

The new codes were then applied to the text documents.

4.4.2 Scanning, Coding and Collation of Data

The second phase included the scanning of the text documents in order to understand their contents. Each of the respondents text documents were then highlighted using different colours for different issues and coded according to subject area in order to group information into manageable bits (See Table 4.9 below).

Table 4.9: Codes applied to data

Code	**Information needs**	**Code**	**Information Needs**
LL	*Legal Language*	*CMC*	*Collective Management of Copyrights*
TN	*Training*	*DM*	*Data Management*
ASR	*Assignment of Rights*	*DA*	*Design Agents*

The coded text was then removed from its original data, collated and grouped into the appropriate subject files. The subject files were then scanned in order to identify any key ideas or recurring themes. Any key ideas or recurring themes were then coded and placed into thematic charts.

4.4.3 Thematic Charts

The purpose of the thematic charts was to allow the researcher to compare where the respondent's knowledge, perceptions held and experiences were similar or dissimilar. In order to make associations between experiences and perceptions amongst the respondents. The thematic charts were split into two groups. The main purpose of the first group of charts was to identify and compare any similarities or dissimilarities in the views of the primary sources (See Table 4.10 below).

Table 4.10: Theme charts for analysis and interpretation of data from the primary sources

Theme	**Source code**	**Similar Views**
code	Extract	Source code
Theme	**Source code**	**Dissimilar Views**
code	Extract	Source code

The second group charts consisted of extracts from the secondary sources that made any reference to the issues raised by the primary sources (See Table 4.11below).

Table 4.11: Theme charts for analysis and interpretation of data from the secondary sources

Theme	**Source code**	**Similar Views**
code	Extract	Source code
Theme	**Source code**	**Dissimilar Views**
code	Extract	Source code

4.5 Data Analysis and Interpretation: Primary Sources (IS1, IS2, DP)

The purpose of the interviews was to compare and contrast the respondent's views on the findings of the literature review and design student survey. From the analysis of data the key themes emerging from the text documents belonging to the primary sources included: the main barriers to an understanding of intellectual property, the need for more formal training and the function of intellectual property rules (See Table 4.12 below).

Table 4.12: Emerging themes

code	Key themes
MBU	**Main barriers to understanding**
mbuCLL	complex legal language
mbuITHPR	inconsistencies in the interpretation of terms and high cost of policing rights
NFT	**Need for more formal training**
nftFIPR	function of intellectual property rules
nftCL	copyright laws
nftIDC	integration into degree courses
MIP	**The management of intellectual property**
mipAR	Assignment of rights
mipDPPS	Data protection policies and strategies
mipDACMC	encourage use of design agents and collective management of copyright

4.5.1 Main Barriers to Understanding

The literature review found that the term 'intellectual property' and the legal language surrounding it could be a contributory factor in the low level of understanding of intellectual property-related issues by designers. In the discussions with respondents, they expressed concern on the negative impact: the complex legal language surrounding intellectual property, inconsistencies in the interpretation of terms and the high cost that policing rights had on designers.

4.5.1.1 Complex Legal language (mbuCLL)

The majority of the respondents identified the complex legal language surrounding intellectual property as a major barrier in the understanding of intellectual property rules by designers. For example one of the respondents observed: *"designers are visual people and tend not to articulate ideas through language. The use of complex legal language makes intellectual property laws difficult to understand"* (DP1). Another of the respondents noted that: *"they are too many different aspects of intellectual property laws that makes the legal language difficult to understand"* (IS1ASF)

On the best methods of improving the communication of information on intellectual property targeted for designers, one of the designers recommended that *"the language of intellectual property laws needs to be expressed using methods or language we can understand"* (DP1). The other argued that information on intellectual property rules could be integrated: *"into design projects that students are working on. That way they can experiment on their own work, the different stages of recording designs for intellectual property issues"* (DP2).

In contrast, the respondents from the information sources all had conflicting views on how information on intellectual property targeted for designers could be improved. For example the respondent from CIPA, argued that *"it is important to avoid the use of any legal language as intellectual property laws are reasonably complicated"* (IS2CIPA). In contrast, the respondent from ACID felt that: *"the term intellectual property is not user friendly, and so we require terminology such as intangibles or know-how that are contemporary descriptions that can be marketed through various intellectual property organisations. Other terminology can include plagiarism, intellectual capital, or intangibles"* (IS2ACID). In other words the term "intellectual property" needed to be changed in order to motivate designers to seek more information.

Some of the other respondents were however against trying to adapt the term 'intellectual property' to make it more appealing to designers because they felt that it would be difficult to find another suitable term. As one of the respondents observed: *"an alternative to the word is not required, I am happy with the use of intellectual property as it covers everything it is meant to cover. Instead of changing the wording I think we need to educate people to understand what it means"* (IS2DO).

Similarly, the respondent from Eric Potter and Clarkson, observed that: *"the use of intellectual property is a descriptive term that would lose its value should it be changed"* (IS2EPC). The problem of trying to change the term used to describe intellectual property according to the respondent is because: *"intellectual property laws apply to different aspects and details, and so to try and gloss it over can be quite difficult"* (IS2EPC).

It was interesting to note that whereas the practising designers were concerned with the adaptation of the language to suit their needs, the main providers of information identified the need to either avoid the use of complex legal terms or educate designers on what intellectual property meant. The reason for the difference in attitudes could be attributed to their awareness of the complexity and inconsistency of laws and legal terms that still needs to be resolved.

4.5.1.2 Inconsistencies in Terms and High Cost of Policing Rights (mbuITHPR)

According to the respondent from CIPA, he noted that *"from my experience the general attitudes towards patents in the business sector is that they are complicated, expensive and not for me* (IS2CIPA). The high cost associated with intellectual property also includes the process of acquiring rights. For example, the Patent Office (2002) estimates that patent applications take over four and a half years to complete from the date when the application is filed. The procedure for acquiring patents includes the filing of a full disclosure of invention, and a search to ascertain whether the invention is new or obvious.

Publication of the patent is followed by an in-depth examination to determine whether the application meets all the legal requirements and is technically sound. The perception that the legal process is complicated and expensive was not only limited to work protected by patents. For example, the textile industry is protected mainly by copyrights, according to one of the respondents however she stated that even in the textile industry: *"the legal process is viewed as complicated and costly and therefore not worth pursuing* (DP1).

The negative perception of intellectual property-related issues amongst designers was blamed by the respondents from the information sources on: the inconsistencies in the interpretation of terms in copyright and design right laws, and the fact that many designers cannot afford to enforce their rights. On the inconsistencies in the interpretation of terms one of the respondents observed: *"in copyright the issue of substantial copying has still to be clarified as in my view something worth copying is a substantial portion of the work"* (IS2EPC). Another noted: *"copyright laws are easy to understand on a superficial level, but they contain a number of 'grey areas' that need clarification such as the difference between idea and expression, and how many changes can be made to a design in order to avoid copyright infringement"* (IS2BU).

The literature review showed that the introduction of intellectual property was used as an incentive for producers to invest time, money and effort into the creative process (Cohen 1978; Caling 1970; Bell 1989, Langton 1984). For example, according to the respondent from CIPA: *"patents, are a bargain between the state and inventor, and in exchange for full technical disclosure, the inventor is awarded exclusive rights that act as an incentive for the inventor to transfer his/ her knowledge into the public domain"* (IS2CIPA).

The literature review also showed that current creative markets are framed and regulated by copyright law, which creates a constant tension between economic realities and legal doctrine (Towse 2000; Karnow 1994; Porter 2002; Rothenberg 1995). Johnston (1997) estimates that copyright legislation currently affects a third of designers work in the United Kingdom and as result they are also affected by the high cost of policing copyrights. The cost of policing rights is especially high for work protected by copyright because as the respondent from the Design Office observed *"The problem with copyright is that anybody can make copies of an idea without exactly making a direct copy of it"* (IS2DO). This means that most cases end-up having to go to court. According to the respondent from Brunel University*: "due to the financial implications of a legal court case, the strategy of small firms or freelance designers when faced with cases of design piracy is to either write and complain to the offending company or to get a solicitor to write and request a letter of apology*" (IS1BU).

Most significantly, another of the respondents argued that: *"major retailers have design protection strategies that perpetuate the culture of the illegal use of design work facilitated by the current loopholes in copyright in which change has to be substantial in order for them to be an infringement*" (IS2ACID).

The fear amongst the respondents was that because of the high cost of policing rights designers will either be deterred from pursuing any legal actions against offenders or informing themselves on the intellectual property rules that apply to them.

According to the respondent from ACID because of the negative effects the high cost of policing rights has on originators: *"ACID lobbying for legislative reform and other initiatives that includes a voluntary code of conduct that is not legally binding but morally binding between originators and other stake holders such as retailers, manufacturers and distributors"* (IS2ACID).

4.5.2 Formal Training

Both the literature review and the design student survey identified the need for more formal training on the property rules that apply to designers. The primary respondents also felt that undergraduate degree courses could do more to provide students with some formal training on intellectual property. They identified a number of key areas on training that included:

- more training on the functions of intellectual property rules
- more training on copyright laws
- integration of training into degree courses

4.5.2.1 **Training on the Function of Intellectual Property Laws (nftFIPR)**

A number of reasons were given by the respondents for the need for more training on the function of intellectual property rules within degree courses. The first reason was the lack of control designers had over the transfer or use off their rights. The second reason, was the need to bridge the gap between creativity and technology.

On the issue relating to the lack of control designers had over use or transfer of their rights, the literature review showed that, property represents a system of power. As result it confers upon the owner of the property rights the power to either control a piece of the material world or to command the labour of others in a subservient and dependent role. According to some of the respondents despite the role of designers in the generation of intellectual property, very few designers had the powers to determine the transfer or use of the rights attached to their work, because in some circumstances they were excluded from the decision making process. For example, one of the respondents noted that depending on the size of the firm, most firm's policies on the hiring of designers and investment in design: *require that in the case of commissioned work designers waive the moral rights to a design"* (IS1BU). According to one of the practising designers: "*in certain commissioned work the handing over of rights remains, the designer therefore does not have much choice in the decision making process"* (DP1).

The subservient role designers had with established firms or clients according to the respondents was not only limited to contractual agreements but also manifested itself in the illegal copying of work. The literature review showed that once design knowledge enters the public domain it is open to abuse, especially if it is not protected (Rushton 2000; Search 1994; Tawney 1978, Veblen 1978). Also because capitalism is an accumulative process, firms that are unable or unwilling to pay for the rights to reproduce a design will often resort to blatant copying. The designer's ability to pursue any legal actions will however be limited when faced with a firm that has the resources to combat any accusations of design infringements.

According to one of the respondents *"major retailers have strategies and legal budgets in place to stonewall any challenges, and this means that the bargaining power belongs to the retailer"*(IS2ACID). As a result, because designers lack the financial resources, they are forced into having to tolerate the illegal copying of their work by established firms.

In order to address the poor bargaining power designers have over the transfer of rights and the predatory instincts of established firms towards design knowledge once it enters the public domain. The majority of the respondents felt that designers required more clarification *"on how the system of intellectual property laws function"* (IS2EPC) in order for them *"to be able to understand why they need to protect their work from the beginning"* (IS2DO). The key to the process of clarification according to the respondents was to have more training on the function of intellectual property within degree courses. The respondent from ACID noted: "*it is important to create a standard business practice with regard to terms of conditions so designers do not lose their sweat equity*[26]*, and the way to do this is by changing the culture of both the training system and retailers attitudes" (IS2ACID).*

The main areas of training identified by the respondents included:

"*the different stages of the process of acquiring rights"* (IS2/CIPA),
"the role of intellectual property as a design management function or part of good business practice" (IS1BU)
" and how to protect rights before telling other people about a new idea" (IS2EPC).

On the other hand, some of the other respondents also felt that one of the root causes of the poor management of rights by designers, was also the traditional separation between creativity and technology within design education. The respondents were of the opinion that by encouraging more training on the function of intellectual property in degree courses, design education could improve: *"the professionalism of designers"* (IS1ASF) working in small businesses.

For example, one of the respondents observed: "*in art training the basic aspects of the legal issues that concern them are often not included in courses*" (IS2EPC). Another argued we: *"need a complete overhaul*[27] *of the business skills taught to textile designers. For example, textile training is divided into textile design and textile technology, this separation between creativity and technology needs an overhaul because it represents the separation between craft and industry"* (DP1).

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[26] the investment in labour, resources and time spent in creating new designs .
[27] the respondent was referring only to the needs of designers working within the textile industry, but the same argument could probably be applied to other design areas

4.5.2.2 Copyright Laws (nftCL)

The literature review showed that Intellectual property rules represent a sorting system that is used to differentiate knowledge and allocate rights to it, and the first step in this process is the automatic allocation of copyrights or unregistered design rights to recorded knowledge. In Maslow's motivational theory, he identified a range of needs that were hierarchical in nature that motivate human behaviour. These human needs ranged from the most basic needs that included the fulfilment of physical needs such as a need for reasonable standards of food, shelter and clothing to the intellectual needs of self-actualisation. By adopting Maslow's model on the hierarchy of needs to the process by which knowledge is allocated rights, it is possible to illustrate the hierarchical nature of the property rights allocated to knowledge (See Figure 4.3 below).

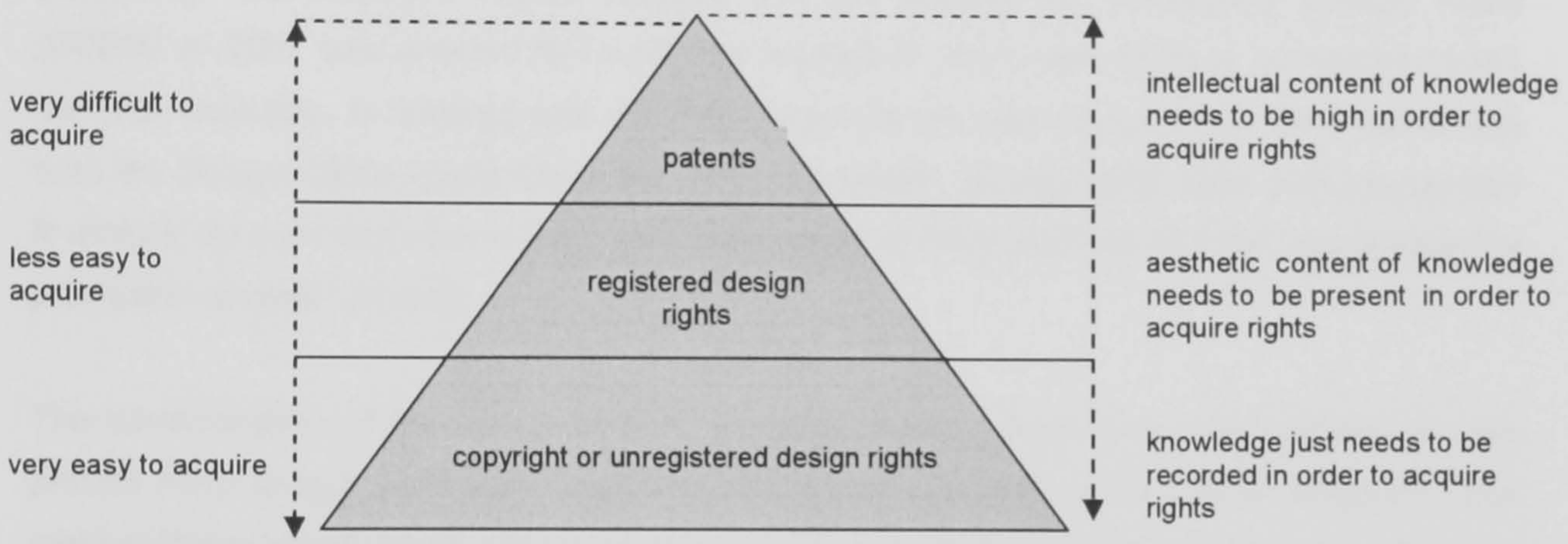


Figure 4.3: Hierarchy of Property Rights in Design knowledge: Adapted from Maslow (1971)

In Figure 4.3 the rights in the lower part of the pyramid, are basic rights that are automatically allocated to any recorded knowledge irrespective of its intellectual or aesthetic content prior to any formal registration. By comparison, the upper and middle parts of the pyramid rights are only allocated to knowledge that meets pre-set intellectual or aesthetic standards. The rights in the lower part of the pyramid are therefore easier to acquire compared to the rights in the middle and upper parts of the pyramid. This narrows the spectrum of knowledge that can be protected by either patents or registered design rights compared to copyrights and unregistered design rights. According to the respondent from ACID: *"94% of the work that ACID handles concerns unregistered designs* (IS2ACID).

Because, of the predominance of copyrights or unregistered design rights in the protection of knowledge prior to any formal registration, the general feeling amongst some of the respondents was that young designers need to enter the employment market with at least some knowledge of either copyrights or unregistered design rights.

For example, the respondent from Eric Porter and Clarkson noted that: *"it is important to know what can qualify for copyright and who it belongs to"*, because in her view *"in a commissioned work for copyright the rights belong with the person who came up with the new material. In design registration the commissioning person retains the rights"* (IS2EPC).

Interestingly, the respondent from the Design Office while he agreed in principle on the need for more training on *"how designers keep records of all the work they do"* (IS2DO) for copyright purposes was also of the opinion that *"in the United Kingdom a great deal of design would not qualify for copyright"*(IS2DO) and was in favour of more training on registered design rights.

Similarly, the respondent from CIPA, also felt that training should not only focus on: *"copyright laws but also modifications or improvements taking place in the Community Design system"* (IS2CIPA). The literature review showed that the Registered Community Design Right (**RCDR**) of 2001 was created to harmonise legislation on design rights in European Union member countries. In keeping with the Registered Community Design Right, the respondent from the Design Office noted that in the United Kingdom: *"design rights have being expanded to include art work and also to apply to a wide range of other products in order to increase the protection of work"* (IS2DO).

The harmonisation of the European laws on design rights means that design rights can now protect more design work than originally covered by copyright in the United Kingdom. The main problem is that the Registered Community Design Right also includes both unregistered and registered design rights, and the unregistered design rights are acquired using the same process as copyright. The respondent form CIPA, however argued that training on design rights would be of value to design students because they will also be involved as practising designers in the design of products that are protected by: *"the design registration system"* (IS2CIPA).

4.5.2.3 Integration into Degree Courses (nftIDC)

On the subject of when training on intellectual property rules should commence, two differing strategies emerged from the discussions. On one hand, the majority opinion was that any training should commence either in the second or third year of study because it is at that stage students are either more commercially minded, having developed their own style or are more receptive to new information.

As the respondent from ACID noted: *"we are currently looking for sponsorship from quasi government bodies to introduce intellectual property training that can be built into syllabuses during the third year".* The respondent considered the third year the most appropriate period because in her view: *"it is at that time students have developed their own originality and feel much more ownership of their ideas"* (IS2ACID). Similarly, one of the practising designers observed that from her own experience: *"the first year is a hard year as students are still trying to find their feet. The second year is more relaxed and should be dedicated to general training"* (DP2).

Nonetheless, a minority of the respondents felt that in higher education the training of intellectual property should be introduced *"in the early parts of the design course"* (IS2DO). In order for intellectual property rules not to be seen *"as something separate"* (DP1) from the design process. One of the respondents, however recommended that any training should *"avoid the use of any legal language as intellectual property laws are reasonably complicated"* (IS2CIPA).

4.5.3 The Management of Intellectual Property

The literature review highlighted the fact that in the United Kingdom, practising designers are not always able to understand the concept that is so important in protecting their investment of time and labour (CITF report 1999). According to one of the respondents: "*in small businesses, part of the designer's functions also include the management of intellectual property*" (IS1BU). The majority of respondents however felt that designers working in a small business had a poor record of managing their rights. According to the report by Spilsbury (2002) on the Assessment of Skills needs in the Media and Creative Industries (ASMCI), one of the problems contributing to the lack of business skills in small businesses is the lack of investment in planning tools. The report estimates that just over 52% of design consultancies had a business plan, 20% had a human resource plan and 14% a training plan. The report also noted that nearly 45% of design consultancies, did not have any of these planning tools and the larger companies were more likely to have each of these plans compared to the smaller firms.

For example one of the respondent observed that "*in a recent visit to the grassroots I was amazed by the lack of understanding of property rights and unfair competition. The training system needs to introduce information on creator's rights as a deterrence and support, and this includes also the communication of rights as a reward*" (IS2ACID).

According to some of the respondents the lack of investment in training by small firms was a contributory factor in the poor understanding and management of the property rules by designers working in small businesses. Also because they lack this knowledge they; often lack policies or strategies to protect their work, mismanage the transfer of rights and make poor use of design agents or licensing bodies.

For example, the respondent from the Design Office observed that: "o*ften many of the problems brought to our attention are because people have not understood until too late that they have assigned their rights" (IS2DO).* The overall impression from discussions with the primary respondents was that designers currently working in the design sector need to improve: how they manage the assignment of rights, their data protection strategies or policies and make more use of either design agents or licensing bodies.

4.5.3.1 The Assignment of Rights (mipAR)

In artistic works the employer becomes the initial owner of the copyright, if it is made by the employee in the course of his work and in the absence of a contrary agreement (Cornish 1991). When external designers are used the copyright or unregistered design rights belong to the designer and transfer of these rights only takes place if it is in writing and signed by both the designer and commissioner of work (Cornish 1990). According to one of the respondents because of technological changes: "*new technology now allows for the transfer of digital copies of design work to be linked to Computer-aided design systems anywhere in the world*" (IS1BU).

On the assignment of rights, the respondents found that young and inexperienced freelance designers were the most vulnerable for a number of reasons:

1. the unequal relationship between the potential client and designer when negotiating the terms of contracts
2. the fear of young freelance designers of losing potential clients by insisting on favourable terms and conditions regarding the transfer of property rights
3. the competitive nature of the design sector.

According to one of the designers, when young freelance designers are "*approached by an established company to produce work they are in awe and forget to look at the small print concerning the transfer of copyrights. This means that they are more likely to be ripped off and then have to incur the cost of paying a solicitor to represent their case" (DP2).* Similarly, the respondent from Brunel University observed: "*designers fresh out of college are too frightened to negotiate the assignment of rights and the financial strength of large companies allows them access to legal advice in the case of any legal actions that freelance designers cannot afford*" (IS2BU).

In contrast, the respondent from Eric Porter and Clarkson noted that: *"working as a commissioner it is certain you want to own the work and therefore it does the commissioner no harm. Freelance designers have more to lose by not assigning rights and in a general situation nothing to gain"* (IS2EPC). Similarly, the respondent from CIPA argued that: "*knowledge on the assignment of rights should be included as part of the training on business skills and knowledge*" (IS2CIPA). He also felt that placing too much emphasis on the assignment of *rights "could work to the disadvantage of the designer when negotiating contracts"* (IS2CIPA).

The reason for this according to the respondent from Brunel University is because: *"some firms really want to be design leaders"* and *"it is bad for business if they have to acknowledge that a design did not originate from them"* (IS1BU). Overall the consensus amongst the respondents, was that freelance designers need more knowledge on the assignment of rights as part of good business practice.

4.5.3.2 Data Protection Policies and Strategies (mipDPPS)

The lack of planning tools in smaller firms identified by the ASMCI report of 2002, will also effect the policies or strategies they put in place to protect their work. On the issue of data protection, both the practising designers indicated that as part of their good business practice they kept records of their design processes. For example one of them noted: *"I design mainly aesthetic textiles, a process that does not include weaving. In my opinion aesthetic textiles are difficult to copy. From personal experience however I keep a diary, of the design process that includes information on whom I talked to about an idea, dates and copies of invoices"* (DP2).

The other observed that *"from personal experience I include a copyright symbol and the year that the work was created. During the weaving process, construction of fabric files are dated* (DP1). The majority of respondents from the information sources however felt that the strict documentation of the design process had a number of limitations for designers because of logistical reasons and the difficulties of proving copyright infringement.

On the logistical reasons one of the respondents noted that: *"data management is a good idea but you have to have in place a system that can be implemented. It is one thing to register a design and another to put up a data management system which can only add to the problem"* (AS2DO). Another observed that *"data management requires that designers keep good records of the design process"* (IS2EPC).

According to Dickson et al (1997) the copying of design work protected by copyright, occurs in those stages in which other designers or clients access data, information or knowledge. On the issue of copyright infringement one of the secondary respondents noted that: *"designs are taken from anywhere, trade show and even brochures"* (DRF2). One of the primary respondents also noted that: *"within the textile industry the copying of designs is prevalent* (DP1).

According to one of the respondents: *"to prove copyright infringement another person must have the exact copy. Design registration is by far the strongest protection because designs have to be registered and in design registration it is sufficient that a copied design creates the same overall impression "* (IS2DO).

The respondents from the information sources felt that because of the difficulties associated with proving copyright designers needed to also consider as part of the process of managing data the registration of designs at the Patent Office. First, because the registration of designs would at least serve as formal or evidential proof of ownership in any legal actions.

Second, in order to avoid the 'loop-hole' of having to prove that the offending design was an exact copy of the original associated with copyright protection. The respondent from the Design office however acknowledged that irrespective of what protection a company or designer uses at the end of the day *"only a court can decide what is applicable in the issue of copyright or design right infringements"* (IS2DO).

The respondents also suggested other methods of data protection that designers could use and they included either *"sending a self-registered envelope containing designs"* (IS2ACI), making use of the self help tools such as the patent office *"blueprint on how to manage data during the design process"* (IS2CIPA) or depositing *"work as in the case of musicians with licensing bodies"* (IS2DO).

4.5.3.3 Design Agents and Collective Management of Rights (mipDACMR)

On the issues concerning design agents and the collective management of rights, the overall consensus was that practising designers should be encouraged to make more use of them. According to one of the respondents the importance of design agents is that at the "*very minimum they assist in establishing how best to protect your rights*" (IS2EPC).

Design agents were also seen as an important source of information for designers wishing to develop or register their own brands. For example one of the designers noted that: "*when I finish my fellowship I would like to launch my own range using my name. I am therefore in contact with Biffra to see what I need to do in order to register my trade mark"* (DP2).

The respondent from the Design Office however noted that one of the problems of using design agents was that they had to *"to have a knowledge and understanding of copyright law, and how the intellectual property system works"* (IS2DO).

On the matter relating to the collective management of copyrights or licensing bodies, the respondents felt that designers needed to make more use of them: *"because it allows designers to share experiences and provides them with help and advice in putting a stronger case in any incidences of design piracy"* (DP2).

In addition, for many small firms who lack the financial clout to ensure protection of their work, licensing bodies play an important role in helping them manage their rights. For example referring to ACID one of the respondents noted that: *"the importance of an organisation like Anti-copying against Design is their thrust in educating designers about their rights, providing information and the opportunity to register designs"* (IS1BU).

Interestingly, the respondent also observed that *"the collective management of copyrights needs to be encouraged because of the globalisation of trade"* (IS1BU), because of globalisation intellectual property rules have also become part of the economic realities of global trade.

For example, the Trade Related Intellectual Property (TRIP) Agreement of 1994 views copyrights, trade marks, patents, industrial designs and the protection of undisclosed information of a commercial value as private rights which member countries must respect (Vad Lane-Rowley 1997). The Creative Industries Mapping Document (**CIMD**) of 1998 estimates that 20% of design companies in the United Kingdom generate at least a quarter of their income from overseas sales.

The respondent therefore viewed licensing bodies as important sources of information that could assist designers who lack formal training on how to manage their copyrights in overseas markets. For example, according to the respondent from ACID. *"ACID offers a simple and explanatory information, that encourages a pragmatic national, European or global approach to the assignment of rights. This can include either partial transfer of rights, non-exclusive arrangements or full exploitation of rights in different markets or on a global basis"* (IS2ACID).

4.5.4 Section Summary

The section findings showed the explicit role of intellectual property rules in the transfer and exchange of design knowledge within the design industry. The factors determining the relationship can be summarised into three main categories; the cultural factors, the political factors, and the management factors.

Cultural factors

1. Designers in general seemed to have a poor understanding of how to acquire, protect and transfer their rights as part of their business skills, mainly due to insufficient training on the rights that apply to them.
2. The separation between creativity and business skills within degree courses.
3. The negative perception of the intellectual property rules by designers because of the complex legal language, inconsistencies in laws and high cost of policing rights.
4. The competitive nature of the design sector that requires designers to be cautious when negotiating terms and conditions concerning the ownership of rights.
5. The vulnerability of copyright protection in a business culture that encourages the abuse of design knowledge once it enters the public domain.

Political factors

6. The incapacity of freelance or self-employed designers in determining the transfer or exchange of rights due to the financial, contractual and legal power of major retailers
7. The lack of power in the decision making process concerning the transfer and exchange of design knowledge within the design sector especially in work undertaken on behalf of clients.

Management factors

8. The designers working in small businesses seemed to have a poor record of managing their rights.
9. Young freelance designers seemed to have a poor record of negotiating the transfer and exchange of design knowledge, and in addition, the lack of sufficient business skills or design management training within degree courses

The overall impression from the findings was that it is established firms or clients that determine the relationship between designers and their rights and designers play a minor role in the process. In addition, in order to challenge the power that established firms and clients have over the transfer and exchange of design knowledge designers either need:

- to improve their understanding of the property rights that apply to them
- or develop policies, methods or strategies on how to manage the rights allocated to their work.

4.6 Data Analysis and Interpretation: Secondary Sources (DRF)

The process of analysing data from the secondary sources made use of the same procedure that was utilised for the primary sources. The main themes emerging from the secondary sources that made reference to a number of the issues raised by the primary respondents included: the management of intellectual property and inconsistencies in the interpretation of laws. In addition, they included the need for more training, the globalisation of trade, the high cost of policing rights and finding the appropriate design protection strategies to combat design infringement. The themes were then coded and placed into theme charts for analysis (See Table 4.13 below)

Table 4.13: Emerging themes

code	Key themes
ssMIP	management of intellectual property
ssGOT	the globalisation of trade
ssNFT	the need for more formal training
ssHCPRIIP	high cost of policing rights and inconsistencies in the interpretation of laws

4.6.1 The Management of Intellectual property (ssMIP)

One of the problems that the textile industry faces is the problem of innovation by imitation. For example, one of the respondents observed that: *"it takes an average of 18 months to develop a new design and it certainly is these innovative bright designs that are being copied"* (DRF2). The secondary sources found that design infringement occurred when work was displayed at trade exhibitions, distributed in brochures, placed on the internet, in major brands or when using subcontractors.

The main offenders in the infringement of designs identified by the respondents, on the domestic market included; major high street retailers, millers and other design studios. For example, according to one of the respondents: "s*ome of the problems start with the mills. One mill offered me a fabric similar to a Laura Ashley design. I didn't know it was LA but I refused it anyway. It is not uncommon to be shown sample of altered designs"* (DRF1).

One of the reasons identified by the respondents that contributes to designers being prone to copying was found by the primary respondents to be their lack of understanding of the business function of intellectual property in general. Interestingly the secondary respondents seemed to suggest that design studios were part of the problem either out of naivety, fear of losing clients or in the belief that they would not be found out or prosecuted.

For example, one respondent commenting on the duplication of designs within the domestic market, noted that major high street retailers specifically commission: *"their suppliers to copy other peoples work"* (DRF3). While acknowledging the fact that *"if designers are thinking the same theme they may come up with similar designs"* the respondent felt that design departments working on behalf of major retailers often *"went around shopping and picking other people's products and blatantly copying"* (DRF3). Another noted that design studios also find themselves entangled in cases concerning design infringement because often their clients, are: *"ignorant of the process of design and the law"* (DRF4) and in the end it is the studio that has to: *"defend themselves"* against accusations of copying.

Furthermore, another of the respondents felt that: *"it's the people who think they won't be found out or who think we might overlook their activities"* (DRF2) who tended to copy their work. According to Porter (2002) in the past it was possible for leading labels to re-invent a design without any repercussions. The archiving of designs by media however has made it not only much easier to trace the original source of a design than in the past but to also prosecute offending companies.

The contrasting views of the primary respondents on the management of data during the design process seemed to suggest the need for more information on the registration of designs. In contrast the policies and strategies used by the respondents to protect their intellectual property seemed to be determined by the financial clout of the firm.

For example, the smaller firms seemed to focus on the continued investment in innovative designs, strict documentation of the design process, stamping of work with a copyright logo or using trusted mills and a more tolerant policies towards design infringements. The larger firm's policies focused on the strict documentation of the design process, registration of designs in the United Kingdom and abroad as well as a zero tolerance policy on design infringements.

On the continued investment in innovation as a strategy, one of the secondary respondents observed: *"I look for protection through design, it's important to keep ahead, move on through evolution of the company. With fair competition it is possible to design your way out"* (DRF1).

On the zero tolerance policy towards copying one of the respondents noted: *"we are a well known firm with enough resources to obtain legal advice anywhere in the world"* (DRF4). In contrast one of the respondents from the smaller firms noted: *"its especially important to know which are the companies to go after and which have to be left alone in terms of cost or other difficulties"* (DRF2).

A common strategy amongst all the respondents however was the strict documentation of the design process. According to one of the respondents they noted that: *"we keep all the documents necessary relating to the development of any design, made up into a brochure, which includes black and white photocopies of the design"* (DRF2). Another observed that they keep: *"all the documents relating to our designs because they help us prove our case"* (DRF4).

The strict documentation of design archives was seen as a leverage to be used when design infringements occur or as one of the respondents so succulently put it: *"our archives go back at least 10 years. It means that we have legal clout. We do have some problems on occasion, but the problems are relatively rare"* (DRF3). Design registration was used by only one of the firms as a protective strategy; they registered all their designs: *"in the UK and in the USA partly because they are so distinctive and also because it could help with a legal problem anywhere in the world"* (DRF4). In contrast one of the other respondents noted that they had never registered a design but had their: *"copyright statement on the salvedge and the date of marketing which is just as good"* (DRF2).

In addition, other strategies included stamping work with a copyright logo or date of marketing and making use of archive material whose copyright had expired. Moreover, some of the respondents who had the resources also retained legal firms in the United Kingdom and internationally to represent them in any legal actions. According to Dickson et al (1997) in the United Kingdom, within the furnishing industry the vast majority of firms protect their fabric designs: "by keeping a record of design documentation and ensuring they own the copyright to it". The focus on data management by the secondary respondents seems to highlight the need for designers to also have some policies on the strict documentation of work.

4.6.2 The Globalisation of Trade (ssGOT)

On the use of licensees the firms seemed to have a number of strategies. The smaller firms either sold directly to retailers, had their own retail outlets or made use of sales agents. Interestingly, only the larger firms had licensing agreements with both domestic and international companies. For example, one of the respondents noted that: *"we have licensees in South Africa and Japan and we work under license to other companies"* (DRF3). In other words the respondent viewed licensing as a method of encouraging other firms to make use of their work without resorting to illegal copying. In contrast, one of the respondents noted that because of their zero-tolerance policy to design infringement: *"we never look for royalties or licensing, we always insist that the stocks are handed over and destroyed, and that the firm pays all the legal costs, and nominal damages"* (DRF4).

On the globalisation of trade, the secondary respondents considered the copying or adaptation of designs their major problem on the global market. For example one of the respondents, noted that subcontractors in Asia or Africa are sometimes: *"just given a design to print and they don't always know it's a copy, and they don't check it out"* (DRF3). Another observed that: "*so far all the copies I have been alerted to have been abroad, particularly Europe"* (DRF1). According to one of the respondents they had: *"their designs coming out in India and being exported. They can sell loads of fabrics while we are trying to sue. In Germany the bed linen was on the market before we had launched our own"* (DRF2). Another observed that: *"we have prosecuted companies successfully in the Far East and in Australia. These companies are usually supplying Western firms"* (DRF4)

More significantly, one of the respondents argued that design infringement was no longer based on the *" the traditional problem of ignorance or flouting the law. So many firms take a strong stand that the message is getting through. I see the problem growing in two areas, one is related to the internet and computing and the other to do with the growth of the industry in less developed countries"* (DRF3).

In the fashion and textile industry for example collaborative work requires an exchange and transfer of information between the in-house design studio, buyer, fabric designer/s, fabric manufacture, garments design and garment manufacture. This makes it much more difficult to control design infringements because of the different attitudes to business ethics and laws amongst trading countries.

4.6.3 Formal Training (ssFT)

The design student survey showed that practising designers only feel motivated to seek information on intellectual property when they have had work copied by others. More significantly, the secondary respondent's testimonies seemed to indicate that those working for small firms had gained their own experience of intellectual property from having had work copied, rather than through any formal training.

For example, one of the respondents observed: "*I'm fairly unusual as a designer who has business and commercial experience. You need to know how to strike a balance between design development and commercial decisions*" (DRF1). Another of the respondents noted that: *"there has certainly being a steep learning curve for me in this. I still feel I am learning something all the time"* (DRF2).

In contrast one of the respondents noted that*: "students are becoming more informed of their rights now, they are asking questions about what they should do. I am sure it's because of the job situation, many more people start out working for themselves now, and they feel they have to be informed*" (DRF3). This could suggest that there is awareness at least within the textile industry for designers to enter the employment market at least with some formal training on how to manage their rights.

4.6.4 The High Cost of Policing Rights and Inconsistencies in Laws (ssHCPRIIP)

The main barriers impeding practising designers from seeking information on intellectual property was found by the primary respondents to be the: negative perception practising designers had of intellectual property-related issues and the complex legal language surrounding intellectual property laws. The secondary respondents seemed to indicate that the high cost of policing rights and inconsistencies in laws were also major areas of concern for them.

The high cost of policing rights was of particular importance to the smaller firms because they lack the financial resources to defend themselves overseas. According to one of the respondents: *"in the UK the costs can be much to great for smaller companies to defend themselves overseas. Getting access to an overseas lawyer is very expansive. They are really faced with the problem of making a choice* (DRF3).

The high cost of policing rights seems to deter smaller firms from pursuing design infringements both locally and overseas because as one of the respondents observed: *"there is no guarantee that you could get your investment back"* (DRF1). Another noted that: *"to sue a company for copyright could take us a year, so it does take a large chunk out of the returns from the design and it is almost impossible to get adequate compensation"* (DRF2).

On the inconsistencies in the interpretation of terms and law, the secondary respondents made most reference to the differences in national laws and the need for the harmonisation of both European and international laws. According to one respondent in Germany both style and colour are protected (DRF3), whereas in the United Kingdom style is not protected. Interestingly because style is not protected in the United Kingdom anyone can copy your ideas. For example one of the respondents observed that: *"a firm like Designer's Guild have a lot of problems because they have developed a style which you cannot protect and they have been imitated a lot"* (DRF1).

The respondents also felt that the European laws needed to be harmonised in order to reduce the legal costs of pursuing offending companies. According to one of the respondents the harmonisation of European laws would make it much easier to take up cases because *"you would find one set of lawyers who could take the whole case through"* (DRF2). The differences in national laws was seen by the respondents as one the of root causes of the high cost of litigation associated with intellectual property-related cases because you need to hire a different set of lawyers for every country. The respondents saw the harmonisation of laws as important because a large part of their products were sold overseas. For example one of the respondents from the small firms noted that *"approximately 35-40% of my output goes in exports"* (DRF1).

On the domestic laws, the main concern for the respondents was the 'grey area' in copyright law on the copying of designs. For example, one of the respondents noted that: *"if a certain look becomes popular, for example blue and yellow leaves, then this will get a lot of exposure and imitations will be found"* (DRF3). Problems then arise in trying to identify " *where the design has been changed, in the drawing or the colour"* (DRF4). Another observed that because of the 'grey areas' in copyright law offending companies can also claim to have developed a design *"independently"* (DRF2).

4.6.5 Section Summary

The section findings showed the explicit role of intellectual property rules in the transfer and exchange of design knowledge within the textile industry. The factors determining the relationship can be summarised into three main categories; the cultural factors, the political factors, and the management factors.

Cultural factors

1. The role of major retailers in sustaining a culture that encourages the abuse of design knowledge once it enters the public domain.
2. The ineptitude or lack of a professional approach by some design studios on matters relating to intellectual property.
3. The acquisition of knowledge through experience rather than any formal training.

Political factors

4. The financial clout and size of a company seemed to determine the data protection strategies or policies utilised by the respondents. For example, the larger firms had a zero tolerance policy and the smaller firms encouraged more investment in innovation policies. Very few of the respondents made use of design registration as a method of data protection.
5. The different strategies firms use to respond to the illegal copying of work. For example, the larger firms with the financial resources were more likely to undertake legal action compared to the smaller companies.
6. The power of clients in directing the development of design projects.

Management factors

7. The use of the strict documentation of the design process as the main method of data protection.
8. The limited use of design agents, licensing bodies or design registration by the smaller firms

The overall impression from the findings was the explicit role or predominance of copyright laws within the textile industry and the complexities associated with it. Interestingly, the respondents provided information on the main methods of data protection and strategies used to combat the problem of design infringement by small businesses. From the data the most significant finding was how the strict documentation was used as legal clout in cases of blatant copying. The increase in self-employment within the textile industry will probably motivate young design students to actively seek information on intellectual property prior to been copied in order to avoid the steep learning curve that some of the respondents had to endure because of a lack of formal training.

4.7 Chapter Summary

Though the findings of the interviews cannot be generalised, it was interesting to note the similarities in the views of the primary and secondary respondents, on a number of key issues.

1. The role of copyright within the design sector and importance of data management during the design process.
2. The role of major retailers or established companies in perpetuating copyright infringement by taking advantage of the loopholes in copyright laws and their access to legal and financial resources.
3. The lack of a professional approach to the management of rights by designers mainly due to their absence of knowledge of the intellectual property rules that apply to them, business skills, or fear of losing clients.
4. The negative impact that the high cost of policing rights has on designers ability to combat the problem of illegal copying and the expanding role of intellectual property in the transfer and exchange of design knowledge as a result of the globalisation of trade and technological changes.

Despite the similarities of views between the primary and secondary sources, on a number of key issues they were also differences in opinions on other key issues. First, the focus of the secondary respondents on the strict documentation of the design process compared to the majority of the primary respondents who favoured the use of design registration as a more secure method. The reason for the difference in opinions could be attributed to introduction of the Community Design rights in 2001 that has expanded the number of products protected by registered design rights that did not exist in 1996. It would therefore be interesting to see what the impact the harmonisation of intellectual property laws in Europe will have on reducing the cost of policing rights and design infringements.

Second, the minimum use of either licensing bodies or design agents by the smaller firms advocated by the primary respondents. The reason for this could be attributed to the fact that both entail costs that the smaller firms would rather not have incurred because, in the study only companies with the financial resources made use of licensing agreements as a method of controlling illegal copying at home or abroad. Overall what was patently clear from both sets of interviews was that the management of intellectual property was and still is a problematic area within the design sector.

Most significantly, from both sets of interviews there were a number of findings that:

- justified the development of the model on the relationship between design and intellectual property
- contributed to giving a focus for the proposed model from both the primary and secondary respondents.

The most important findings justifying the need for a model were the explicit role of intellectual property rules in the exchange and transfer of design knowledge manifest in both sets of interviews. This was followed by the need to change the attitudes or culture of designers towards the intellectual property rules that apply to them, suggested by the primary respondents. First, in order to challenge the power that clients or established firms have in determining the relationship between designers and their work identified by the respondents. Second, as a method of reducing the cases of design infringements or inept assignment of rights that are a direct result of a lack of knowledge.

The most significant finding directing the focus of the proposed model was the explicit or primary role of copyright in the protection of recorded data prior to any formal registration identified by both the primary and secondary respondents. Design is a service industry dependent on the goodwill between the client and design studio and normally it is the client who determines the contractual terms. The lack of knowledge or understanding of the property rights that apply to them however makes it easier for established companies to manipulate the inconsistencies in copyright laws or control the terms and conditions of contracts in commissioned projects.

The proposed model could therefore make use of Rodgers and Clarkson (1998) model on the classification of knowledge generated during the design process to illustrate a number of key issues. Firstly, how and when designers begin the process of acquiring rights. Secondly, how and when designers begin the process of protecting their rights. This will be developed in the next chapter.

Proposed Outcomes

5. The Development and Evaluation of Proposed Model

Based on the results of the primary and secondary research a model explaining how and when design knowledge is allocated formal and informal property rights during the design process was developed and tested. The methodology used in the validation process included; the development of the model, testing, analysis of data and summary of findings.

5.1 Introduction

The objective of the proposed model was to summarise the complex relationship between design and intellectual property rules based on the findings of the secondary and primary research. The primary research showed that designers have problems in understanding how they acquire, protect and manage their rights (see pages 121-122). Each of these problems represent different facets of the complex relationship between design and intellectual property rules.

The recent trends in employment patterns amongst designers, coupled with the introduction of new information and communication technology, and the globalisation of trade, seem to suggest the transfer and exchange of design knowledge will increasingly be regulated by intellectual property laws **(see Pages)**. According to Chartrand (1996) intellectual property laws are essentially property rules that propel explicit design knowledge onto the market and are considered to be more instruments of commerce than culture. Similarly, the secondary and primary research showed that design knowledge is attributed a property value through the allocation of rights in order to protect it from any potential copying and to regulate its transfer and exchange once it enters the public domain (Figure 5.1.).

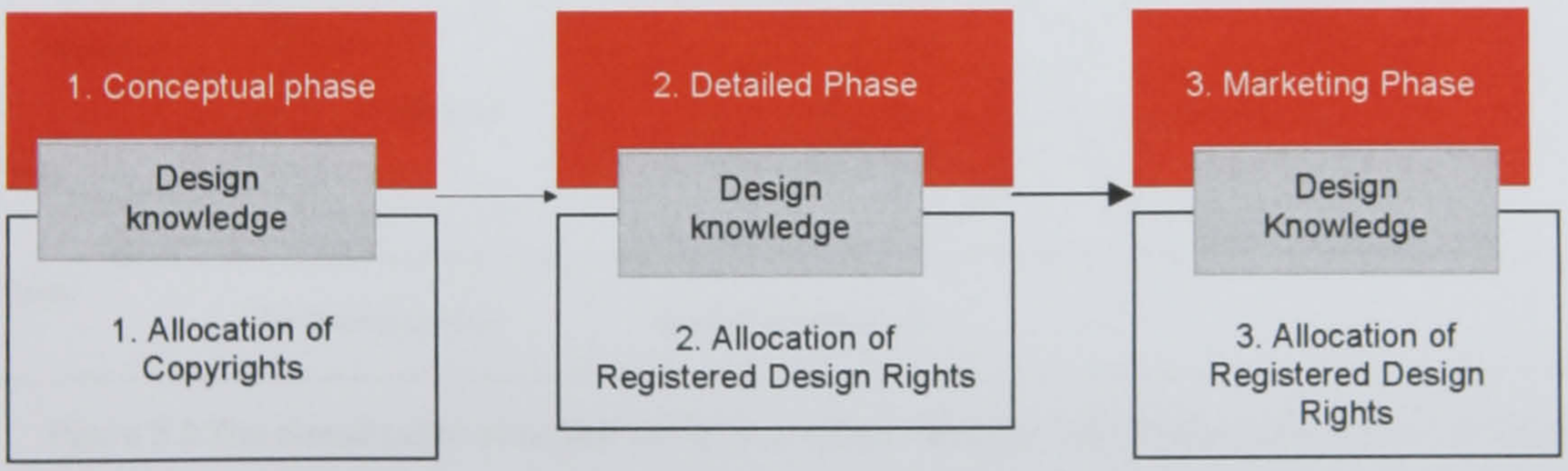


Figure 5.1: The main function of intellectual property rules

This research therefore employed the model as a tool that could be used to explain when design knowledge is allocated property rights during the design process. Developing a model that explains to designers when design knowledge is allocated property rights during the design process is important because every time designers generate explicit design knowledge they also create property.

As a result any subsequent display, exchange or transfer of explicit design knowledge is protected and regulated by property rights. It is hoped the proposed model will provide designers with a tool that can assist them to think and consider:

- the need to maintain a record of design knowledge generated during design projects for the purposes of copyright or unregistered design rights
- the need to clarify the ownership of rights during the transfer and exchange of design knowledge
- the need to monitor and protect the rights they acquire when working on design projects.

5.2 Construction of Model

One of the main problems that arose when developing the model was how to illustrate when and how design knowledge is allocated formal and informal property rights during the design process in a manner that was user-friendly and easy to follow. Rodgers and Clarkson (1998), model on the transformation of tacit expert design knowledge into explicit design knowledge strongly influenced the development of the proposed model for a number of reasons. Firstly, their model made a clear distinction between tacit and explicit design knowledge as well as identifying when tacit knowledge is transformed into explicit knowledge during the design process (See Figure 5.2).

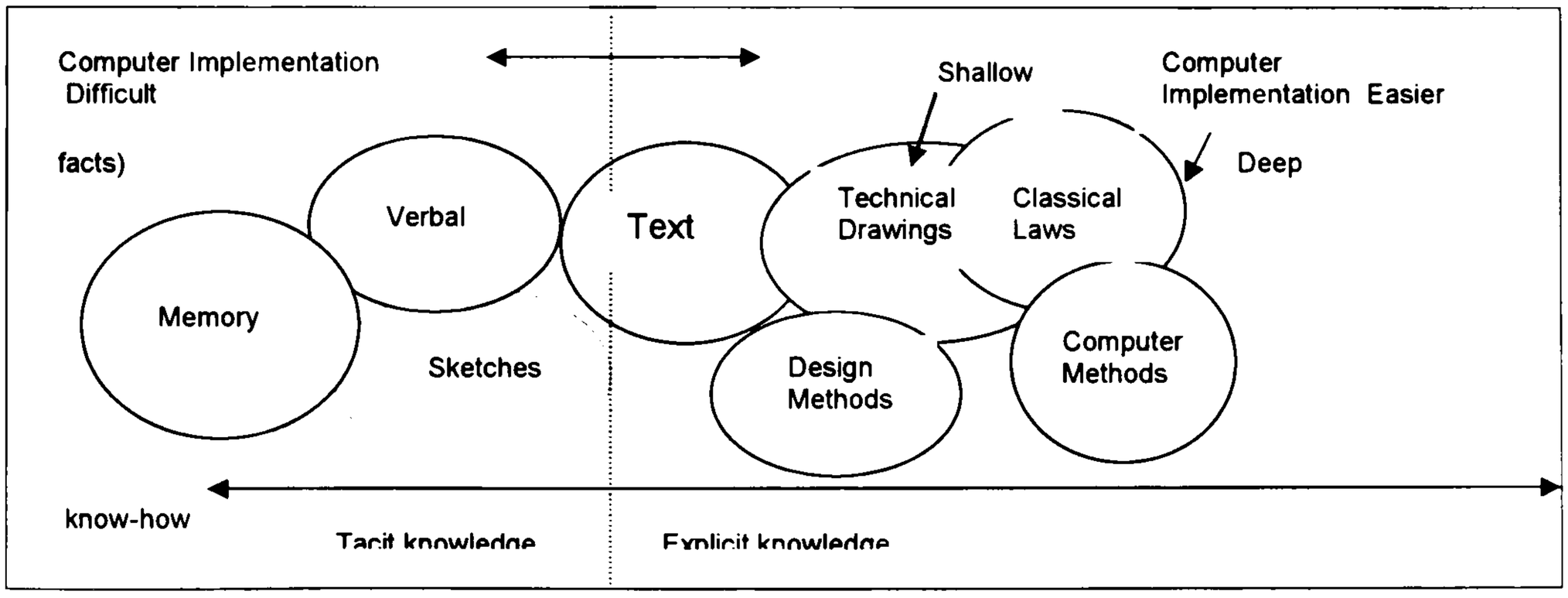


Figure 5.2:The classification of explicit design knowledge: Adapted from Rodgers and Clarkson (1998)

Secondly, their model identified the different types of explicit design knowledge generated during and after the design process (See Figure 5.3 on Page 125).

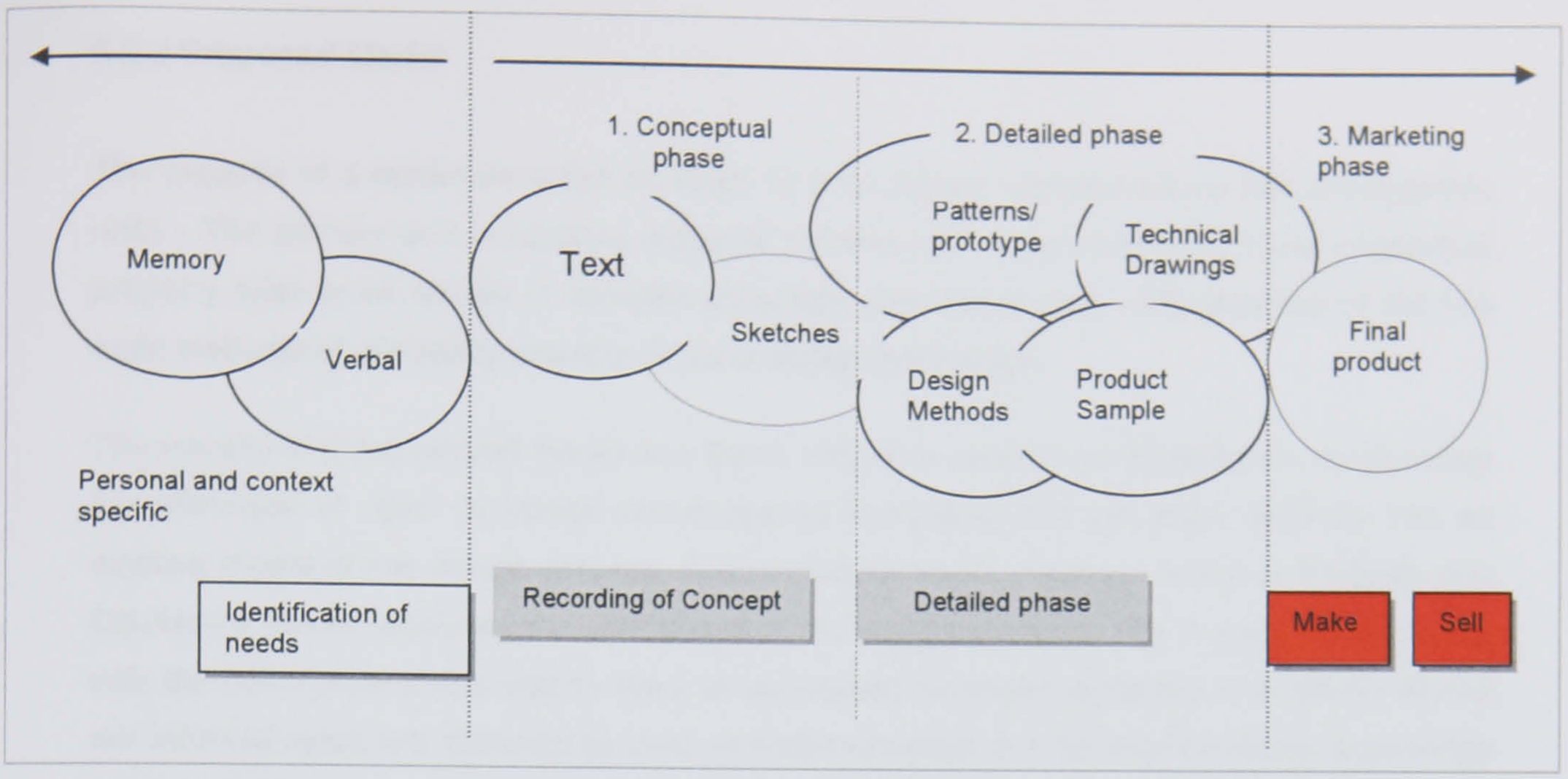


Figure 5.3:The generation of explicit design knowledge during key stages of the design process: Adapted from Rodgers and Clarkson (1998)

The main advantages of Rodgers and Clarkson's (1998), model is that:

1. it provided information on the format used in recording design knowledge during the design process based on empirical studies
2. it provided information on when design knowledge is first recorded during and after the design process making it easier to pinpoint when designers begin the process of generating explicit design knowledge and acquiring rights
3. it was simple, as well as easy to understand and follow
4. in addition, the distinction between the different types of explicit design knowledge facilitated the illustration of the two main methods (formal and informal) of allocating rights to design knowledge

The main disadvantage of the Rodgers and Clarkson's (1998), model is that it was concerned mainly with facilitating the computer implementation of expert design knowledge and not the privatisation of knowledge. In order to test whether Rodgers and Clarkson's model could be adopted in illustrating how design knowledge is allocated property rights. An existing project on the development of a sports shoe by Nike was superimposed on the key stages of the design process identified by Rodgers and Clarkson. After a series of trails (see Appendix I) the researcher adopted a comprehensive, three level model organised into three stages that drew attention to:

- the key stages when design knowledge is allocated copyrights, unregistered design and registered design rights during the design process
- the nature of the rights
- the methods used in ensuring short or long-term ownership of the rights

5.2.2 Proposed Model

The purpose of a model as noted on Page 12 is to reduce complex issues into manageable units. The primary and secondary research showed that many designers found intellectual property rules to be written in complex language, and had a poor understanding of the two main methods of allocating property rights to design knowledge.

The novelty of the proposed model was that it sought to reduce the complexities surrounding the allocation of rights to design knowledge by integrating the two main methods into an existing model of the design process. The proposed model however, unlike in Rodgers and Clarkson's model, excluded the tacit phase of the design process. The reason for beginning with the conceptual phase was to raise an awareness amongst designers that neither formal nor informal rights are allocated to ideas or tacit knowledge but the explicit design knowledge that is actually created during the design process (Figure 5.4).

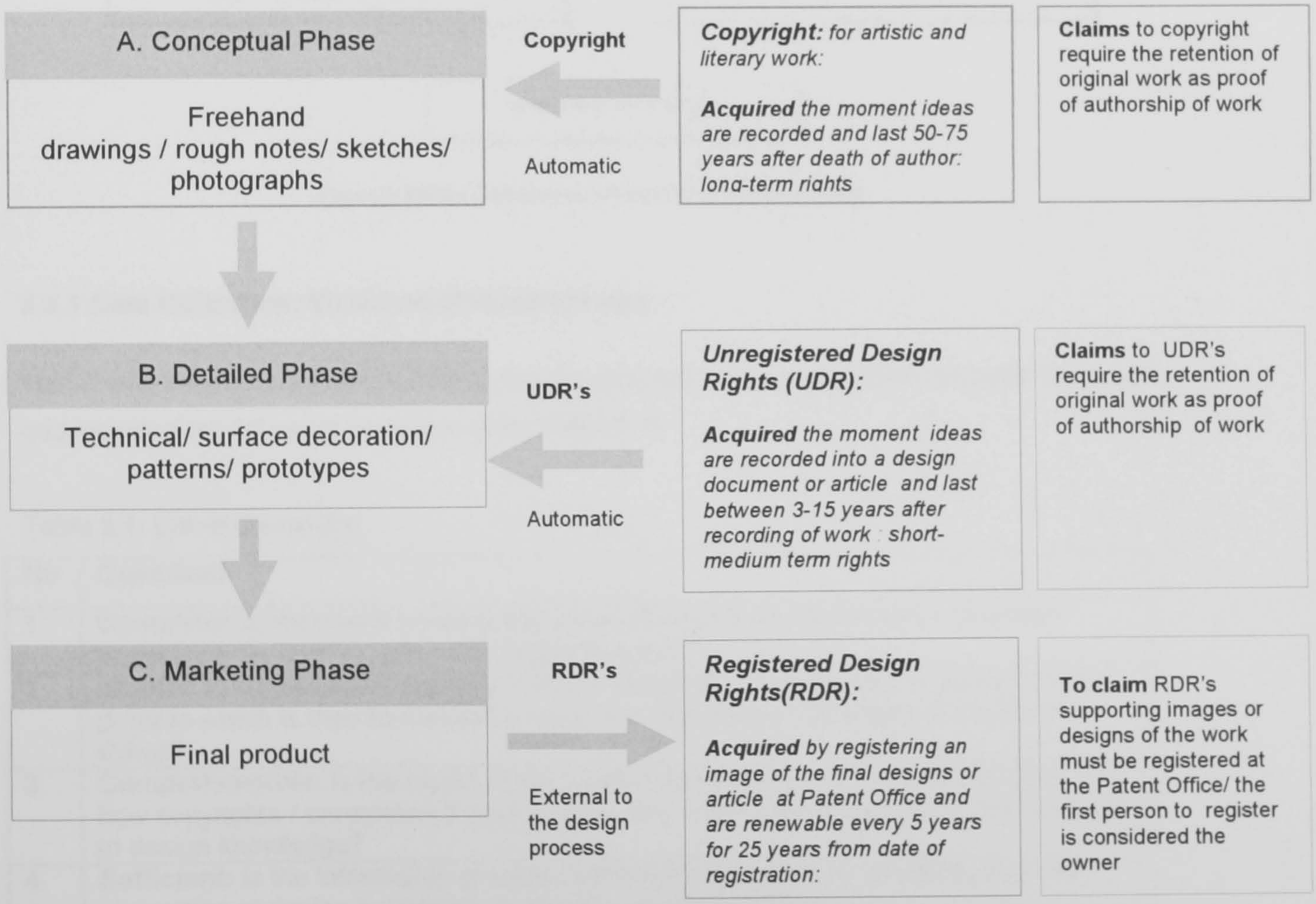


Figure 5.4: Model illustrating the allocation of property rights to design knowledge : Adapted from Rodgers and Clarkson (1998)

5.3 Testing of Model

The aim of the test was to validate whether the model represented an accurate description of the allocation of informal and formal property rights to design knowledge during the design process, and to examine whether it could improve how designers understand the property rules that apply to them. A copy of the model and a questionnaire was used as the main method of data collection (see **Appendix J).** Figure 5.5 illustrates the method used in testing the proposed model and data analysis of findings.

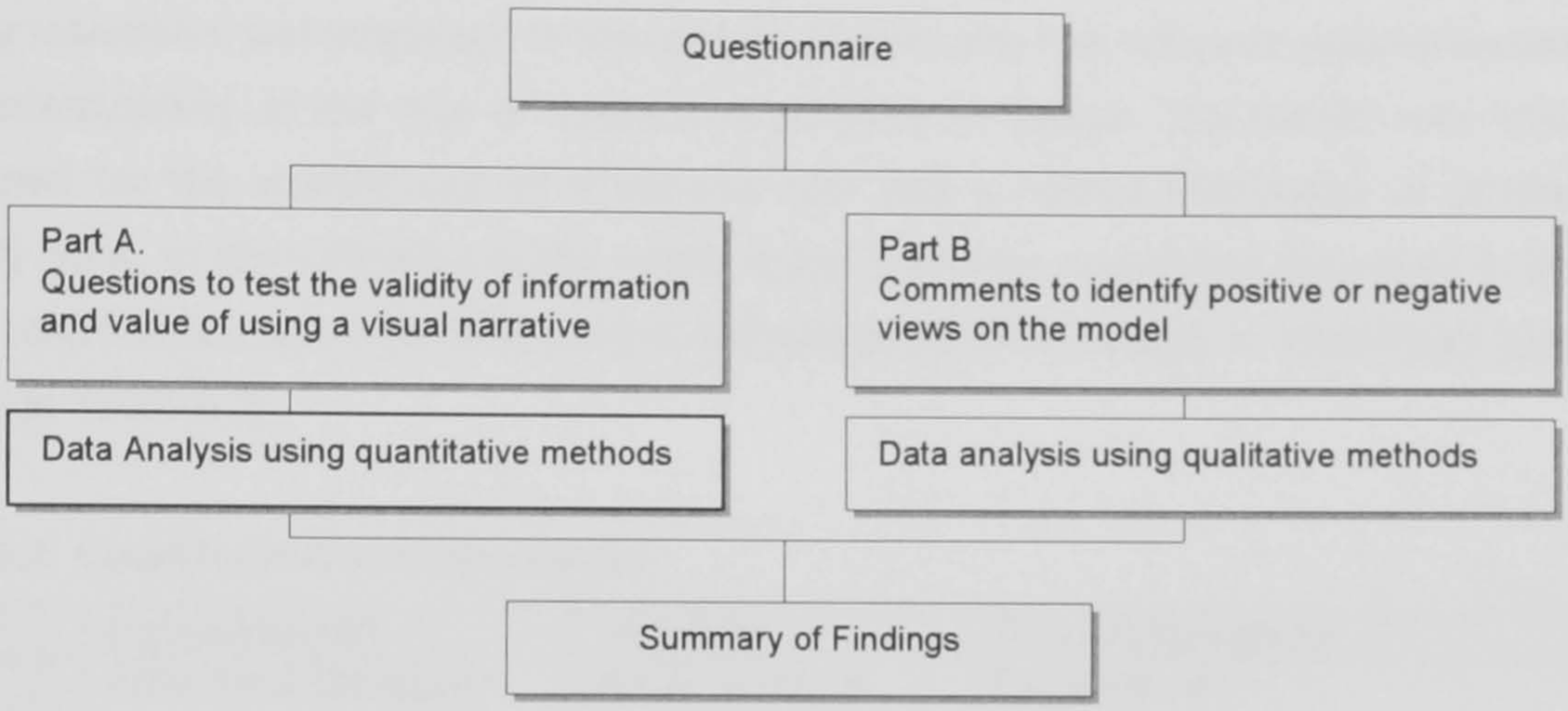


Figure 5.5 Data Collection methods and Analysis of Data

5.3.1 Data Collection: Structure of Questionnaire

Part A was mainly concerned in identifying the attitudes of the respondents towards the model and included the following questions (See Table 5.1).

Table 5.1: List of Questions

No	Questions
1	**Complete:** Is the model an accurate observation of the different types of design knowledge generated during the design process?
2	**Helpful**: Is it helpful in illustrating how the acquisition of rights begins as an informal process which is then formalised through the registration of designs at the Patent Office?
3	**Comprehensible:** Is the layout of the model successful in communicating when and how copyrights / unregistered design rights and registered design rights are allocated to design knowledge?
4	**Sufficient:** Is the information provided sufficiently adequate in describing how the generation of design knowledge is also the source of rights?
5	**Necessary:** Do designers require a model on the relationship between design knowledge and intellectual property rules?
6	**Flexible:** Is it possible for the model to be adapted or expanded to other forms of design such as fashion, textile, product, architecture or multimedia design?
7	**Novel:** Does the model provide you with new insight into the relationship between the design process and intellectual property rules compared to other guides, information or models you are familiar with?

Participants were asked to indicate their views from a scale of five to one. Part B of the questionnaire asked the respondents using a scale of 1 to 10, (1 being the worst, and 10 being the best), how they would rate the model and any general comments they wanted to make with reference to Part A.

5.3.2 Profile of Respondents

The model was concerned with the integration of two very distinct and separate areas of specialisation, design and intellectual property rules. In the interviews carried out during the primary research it was important to identify key players who had a shared cultural knowledge and understanding of the role of intellectual property in design. The model was however developed for the specific use of designers who had a limited knowledge of intellectual property rules. In the validation of the model it was therefore considered important to have a mix of respondents who shared a cultural knowledge in either design or intellectual property laws (See Table 5.2).

Table 5.2: Classification of Respondents

Code	Organisation	Job Title	Knowledge-base
D1	Freelance Designer	Shoe designer	Shoe design
D2	Freelance Designer	Graphic designer	Multimedia design
D3	Freelance Designer	Design Consultant	Product design
D4	De Montfort University	Senior Lecturer	Product design
DA1	Anti-Copying in Design (ACID)	Chief Executive	Design and Intellectual property laws
DA2	Patent Office	Design Officer	Design and Intellectual property laws
LP1	Aston School of Business and Law	Academic lawyer and author	Design and intellectual property laws
LP2	Eric Potter Clarkson Private Law Firm	Intellectual Property Lawyer	Design and Intellectual property laws

Legend: D= Designers, DA= Design Agents, LP= Legal Profession.

The cultural knowledge of the designers was considered important in testing whether the model was successful in communicating information to designers through the use of a visual narrative. The cultural knowledge of the non-designers was considered important in testing the validity of the legal information accompanying the visual narrative.

The research used a mix of sampling strategies which included identifying participants through snowballing; that is using participants who are recommended by other people on the basis of their knowledge. Another method used was by establishing a criterion for potential participants who would be useful for quality assurance because of their knowledge and experience in the issues raised by the model.

The main criterion for the designers was that they had to have knowledge or experience of the design process used in product, fashion or graphic design. The non-designers were selected on the basis of their knowledge and experience of both the design process and intellectual property rules.

5.4 Results of Data: Part A and B

In response to the list of seven questions in Part A the respondents were asked to rate their preference on a scale of 5-1 with 1 indicating low satisfaction and 5 a high satisfaction on whether the model was: complete, helpful, comprehensible, sufficient, necessary, flexible, or novel. In Part B of the questionnaire respondents asked using a scale of 1 to 10, (1 being the worst, and 10 being the best), to indicate their overall impression of the model. The results from Part A and B are listed below (see Tables 5.3-5.6).

I. Individual Responses to Part A and B (see Table 5.3)

Table 5.3: Individual responses to Part A and B

Respondents	1A	2A	3A	4A	5A	6A	7A	Part B
D1	5	5	5	5	5	5	5	10
D2	5	5	5	5	5	5	5	10
D3	5	5	4	5	5	5	4	9
D4	4	4	3	4	4	3	3	6
DA1	4	4	3	3	5	5	4	8
DA2	3	2	1	1	4	4	5	6
LP1	3	4	4	4	5	4	3	8
LP2	4	4	4	3	3	4	1	9

Legend: 5= Strongly Agree, 4=Agree, 3=Undecided, 2=Do not Agree and 1=Strongly Disagree.

II. Overall Responses to Questions 1A – 7A excluding Part B (see Table 5.4)

Table 5.4: Overall responses

Respondents	**SA**	**A**	**UD**	**DA**	**SD**
1.complete	3	3	2	0	0
2.helpful	3	4	0	1	0
3.comprehensible	2	3	2	0	1
4.sufficient	3	2	1	0	0
5.necessary	5	2	1	0	0
6.flexible	4	3	1	0	0
7.novel	3	2	2	0	1

Legend: 5= Strongly Agree, 4=Agree, 3=Undecided, 2=Do not Agree and 1=Strongly Disagree.

III. Overall Response to Questions 1A-7A excluding Part B according to Knowledge-base (see Table 5.5-5.6)

Table 5.5: Non-Designers

Non-Designers	**SA**	**A**	**UD**	**DA**	**SD**
1.complete	0	2	2	0	0
2.helpful	0	3	1	0	0
3.comprehensible	0	2	1	0	1
4.sufficient	0	1	2	0	1
5.necessary	2	1	1	0	0
6.flexible	1	3	0	0	0
7.novel	1	1	1	0	1

Legend: 5= Strongly Agree, 4=Agree, 3=Undecided, 2=Do not Agree and 1=Strongly Disagree.

Table 5.6: Designers

Designers	SA	A	UD	DA	SD
1.complete	3	1	0	0	0
2.helpful	3	1	0	0	0
3.comprehensible	2	1	1	0	0
4.sufficient	3	1	0	0	0
5.necessary	3	1	0	0	0
6.flexible	3	0	1	0	0
7.novel	2	1	1	0	0

Legend: 5= Strongly Agree, 4=Agree, 3=Undecided, 2=Do not Agree and 1=Strongly Disagree.

5.4.1 Data Analysis and Interpretation: Part A

I. Percentage of Overall Responses to Part A (see Table 5.7)

Table 5.7:Overall responses

No Respondents	SA %	A %	UD %	DA %	SD %
1.complete	37.5	37.5	25	0	0
2.helpful	37.5	50	0	12.5	0
3.comprehensible	25	37.5	25	0	12.5
4.sufficient	37.5	25	25	0	0
5.necessary	62.5	25	12.5	0	0
6.flexible	50	37.5	12.5	0	0
7. novel	37.5	25	25	0	12.5

Legend: 5= Strongly Agree, 4=Agree, 3=Undecided, 2=Do not Agree and 1=Strongly Disagree.

In the overall responses to Part A, there was a high consensus for the necessity of a model on the relationship between explicit design knowledge and intellectual property rules with 62.5 % of the respondents indicating that they strongly agreed and 25% agreeing.

The flexibility of the model to adapt to other forms of design knowledge also scored a high mark with 50% of the respondents indicating they strongly agreed that model could be adapted to other design process and 37.5% also agreeing.

The helpfulness of the model was also viewed favourably with 50% of the respondents indicating that they agreed that the model was helpful in illustrating how property rights are allocated to explicit design knowledge and 37.5% strongly agreeing. There was however a disparity in responses concerning the novelty of the model with 37.5% expressing a high level of agreement, 25% undecided and 12.5% a low level of agreement.

II. Percentage of Non-Design Responses to Part A (see Table 5.8)

Table 5.8: Non –designers

Non-designers	**SA %**	**A %**	**UD %**	**DA %**	**SD %**
1.complete	0	50	50	0	0
2.helpful	0	75	25	0	0
3.comprehensible	0	50	25	0	25
4.sufficient	0	25	50	25	0
5.necessary	50	25	25	0	0
6.flexible	25	75	0	0	0
7.novel	25	25	25	0	25

Legend: 5= Strongly Agree, 4=Agree, 3=Undecided, 2=Do not Agree and 1=Strongly Disagree.

In the responses based on the knowledge of the respondents in the non-designers section which included the legal professionals and design agents, 75% of the respondents agreed the model was helpful in articulating how property rights are allocated to explicit design knowledge with the remainder undecided. 50% of the respondents found the information provided to be complete and the remainder were undecided. 50% of the respondents found the model to be comprehensible however 25% were undecided and 25% strongly disagreed.

The disparity in views concerning the comprehensibility of the model can possibly be attributed to the fact that the non-designers approached the model from different perspectives of intellectual property rules. For example the Academic Lawyer is an expert on copyright law and the Commercial Lawyer in registered rights and the model was primarily about the acquisition of copyrights and unregistered design rights.

50% of the respondents indicated that they strongly agreed that the model was necessary, 25% also agreed and the remainder were undecided. Overall 75% of the respondents were in favour of the necessity of the model which indicates that either designers currently lack models that assist them in understanding the relationship between design and intellectual property rules, or the information currently in circulation does not take into account the needs of designers.

The flexibility of the model was considered its most positive aspect with 25% strongly agreeing and 75% agreeing. On the question of novelty there was no clear consensus and the views were evenly distributed with 50% strongly agreeing or agreeing that it was novel, 25% undecided and 25% strongly disagreeing.

The positive responses of the non-designers with expert knowledge of intellectual property laws concerning the helpfulness, necessity and flexibility of the model was an indication of the effectiveness of the model in articulating how design and intellectual property laws interact. The negative response attributed to the sufficiency of information provided highlighted the difficulty of providing information that could sufficiently satisfy all the needs of the non-designers whose knowledge is determined by their area of specialisation and experience.

III. Percentage of Design Responses to Part A (see Table 5.9)

Table 5.9: Designers

Designers	**SA** %	**A** %	**UD** %	**DA** %	**SD** %
1.complete	75	25	0	0	0
2.helpful	75	25	0	0	0
3.comprehensible	50	25	25	0	0
4.sufficient	75	25	0	0	0
5.necessary	75	25	0	0	0
6.flexible	75	0	25	0	0
7.novel	50	25	25	0	0

Legend: 5= Strongly Agree, 4=Agree, 3=Undecided, 2=Do not Agree and 1=Strongly Disagree.

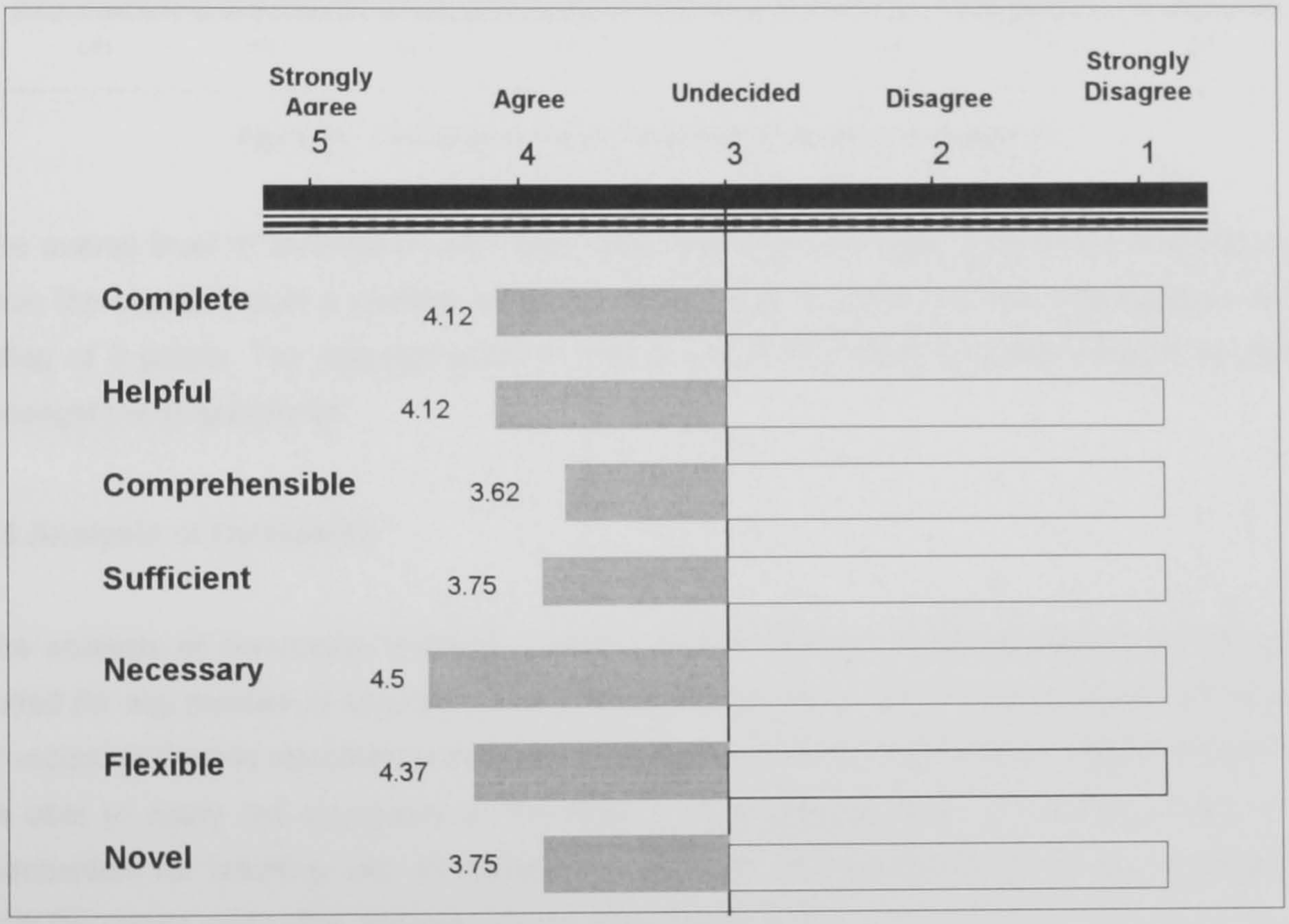
In the designers section the majority of respondents responses indicated a favourable view of the model with 75% indicating they strongly agreed that the model was complete, helpful, sufficient, necessary and flexible.

A disparity in responses was however noticeable concerning the novelty of the model with 50% strongly agreeing, 25% agreeing and 25% undecided. In the designers section the rate of approval was high with regard to all the questions. The reason for this can be attributed to the fact that the designers had no expert knowledge of the relationship between design and intellectual property rules and therefore could only judge the model on the basis of their own cultural knowledge and information needs. As a result they took a less critical view of the legal information supporting the visual narrative.

IV. Overall Response to Part A

From the attitude scale of 5 to 1 (with 5 indicating a high level of agreement and 1 a low level of agreement with the model) the average scores ranged from 4.5 to 3.62. (See Table 5.10)

Table 5.10: Average scores of all the Questions



The highest level of agreement was 4.5 for the necessity of the model, followed by the flexibility of the model to adapt to other design processes with an average score of 4.37. The lowest level of agreement concerned the success of the model in communicating how and when copyrights, unregistered design rights and registered design rights are allocated to explicit design knowledge. All the points on the attitude scale however were above three indicating that the testers tended to agree that model was successful in integrating the design process and intellectual property rules.

5.4.3 Results of Data: Part B

In Part B using a scale of 1 to 10 (with 1 indicating low level of satisfaction and 10 high satisfaction) the respondents were also asked to indicate how they would rate their overall impression of the model. In part B of the questionnaire respondents were also asked to make any negative or positive comments on the model. The line chart below was used to represent the overall response to the model by all the respondents (see Figure 5.6).

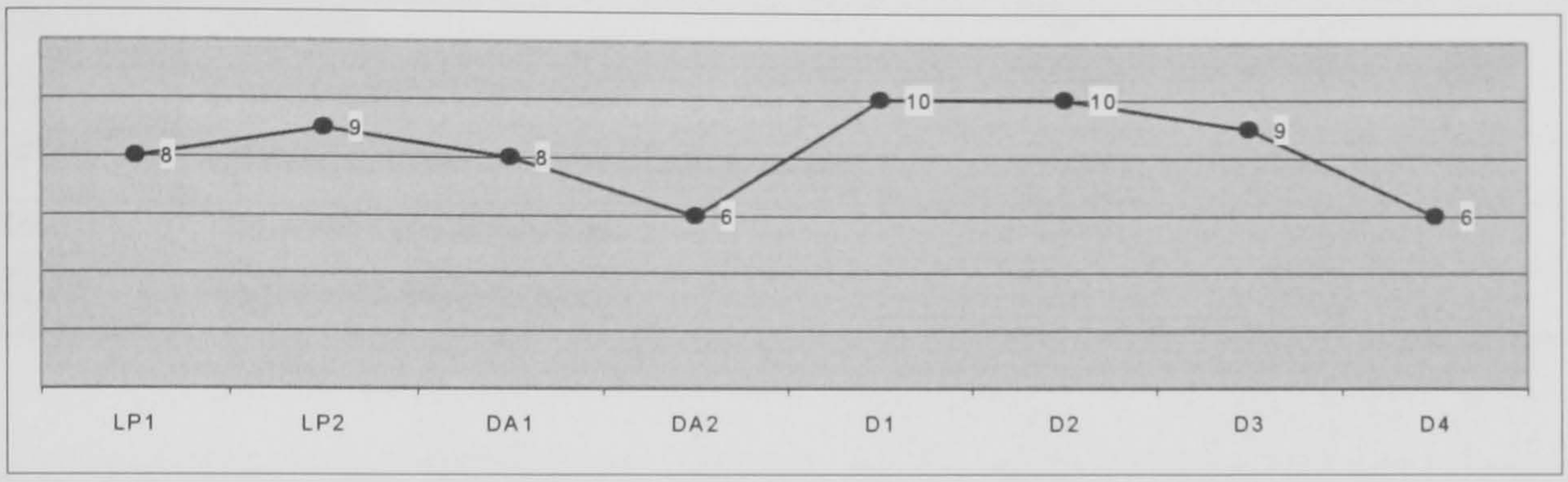


Figure 5.6: Line Chart of Overall Satisfaction of Model by Respondents

The overall level of satisfaction with the model indicated was high. 75% of the respondents gave the overall model a positive rating between 8 and 10 points and the remaining 25 % a rating of 6 points. The average score in Part B was 8.25 indicating a high satisfaction rate amongst the respondents.

5.5 Analysis of Comments

The analysis of comments involved a search of the data for recurring themes, which was coded for any positive or negative comments on the model. A list of the key issues, concepts or recurring themes was then generated, re-coded and placed into a set of charts in order to be able to apply the categories to the data in its contextual form. The codes provided a mechanism for labelling data in manageable bites for subsequent retrieval and exploration from the charts during the analysis of data (See Figure 5.7).

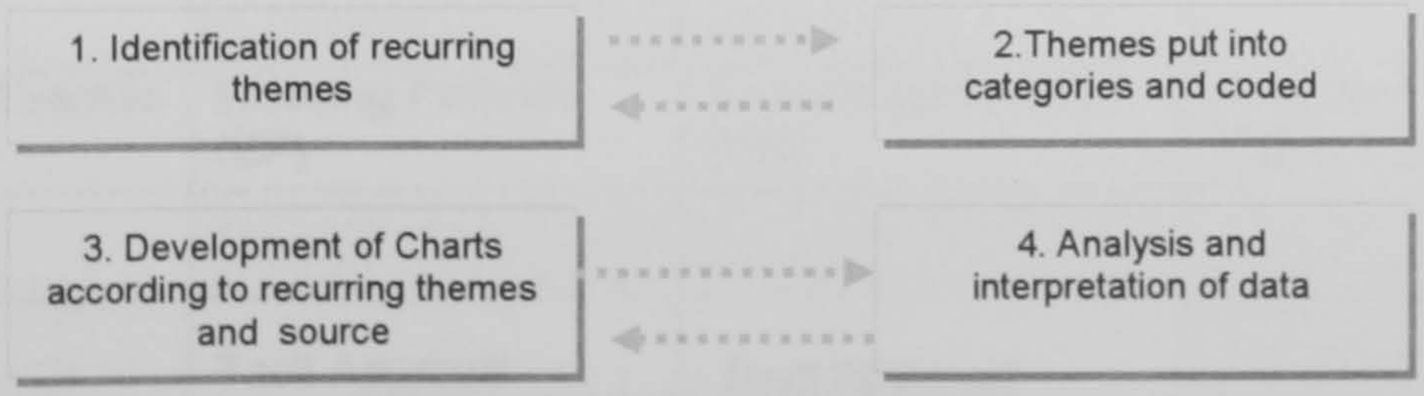


Figure 5.7: Interaction of Data Analysis

In Part B the recurring themes identified included issues concerning the content of model, reference to copyrights, registered design rights, the role of intellectual property in employment contracts and company policies, and the need for knowledge (See Table 5.11).

Table 5.11: Recurring themes

Code	Recurrent Themes	Non-Designers	Designers
CM	The content of the model	2	2
CR	Copyright	4	*
EC	Employment contracts.	3	1
EP	Existing policies on intellectual property	3	1
KN	The need for knowledge	3	2
RDR	Registered design rights	4	*

Sets of charts were then developed for each area of specialisation and were divided into the themes identified in Table 5.11. The respondents' comments vied between an explicit or tacit approval and disapproval of the model. The respondents positive or negative comments on each theme were then extracted from their original context and placed into the appropriate thematic category. Data collected from the final theme charts was then analysed and used to make implicit connections between the negative and positive perceptions of the model by each respondent. Tables 5.12 to 5.14 below are a summary of the positive or negative comments made by the respondents in the appropriate thematic categories (**see Appendix K).**

Table 5.12: Designers: Positive and Negative Comments on Recurring Themes

Themes	**Content of Model (CM)**	**Copyrights ©**	**Employment Contracts (EC)**
D1	Explicit Approval		
D2			Tacit Approval
D3	Explicit Approval/ Critical		
D4			
Themes	**Existing Policies (EP)**	**Knowledge Needs (KN)**	**Registered Design Rights (RDR)**
D1			
D2	Tacit Approval	Tacit Approval	
D3			
D4		Critical	

Table 5.13: Design Agents: Positive and Negative Comments on Recurring Themes

Themes	Content of Model (CM)	copyrights (CR)	Employment Contracts (EC)
DA1		Tacit Approval	Tacit Approval
DA2	Explicit Approval	Critical	
Themes	**Existing Policies (EP)**	**Knowledge Needs (KN)**	**Registered Design Rights(RDR)**
DA1	Tacit Approval	Tacit Approval	
DA2			Critical

Table 5.14: Legal Profession: Positive and Negative Comments on Recurring Themes

Themes	Content of Model (CM)	Copyrights ©	Employment Contracts (EC)
LP1	Explicit Approval		Tacit Approval
LP2	Explicit Approval/ Critical		
Themes	**Existing Policies (EP)**	**Knowledge Needs (KN)**	**Registered Design Rights(RDR)**
LP1		Tacit Approval	Critical
LP2			Critical

I. *Registered Design Rights: Positive and Negative Comments*

The overall responses on registered design rights were critical of the failure of the model to highlight the importance of registered designs. The Commercial Lawyer noted that the "The area where the model appears weakest is in relation to registered designs, where the importance of filing the date relative to earlier disclosure of the design is not readily apparent"(LP2/RDR).

Another criticism was the failure of the model to highlight how an organisation's overall strategies determine whether copyright or registered design rights are used. The Design Officer at the Patent Office for example observed that: "Some companies do not consider copyrights to be important and will forgo copyright protection for registered design rights"(DA2/RDR).

In addition an observation was made concerning the overlap between registered designs and trademarks, which was missing from the model. The Academic Lawyer highlighted the need to provide information on the fact that "Some shapes may be registered as trademarks" (LP1/RDR).

II. *The need for knowledge: Positive and Negative Comments*

The overall response on the need for knowledge included in the model was mainly positive with recommendations made on the need to expand the scope of the information provided in the model. The academic lawyer observed that "the model should be expanded to cover other rights that may be applicable e.g. Community Design, Patents, Trade marks" (LP1/KN).

The representative from ACID acknowledged that knowing and understanding "intellectual property and its rights and asserting that knowledge in a communicable way" can act as a "deterrent factor surrounding a product or brand" (DA1/KN). The Freelance Graphic Designer was of the opinion that though "property rights are very important there is little, if any knowledge of the rights of designers" (D2/KN). The main criticism came from the Design Academic who felt that "an in-built mechanism that helps people understand what elements should be protected under intellectual property rules/ laws" (D4/KN) would be more helpful.

III. *The content of the model: Positive and Negative Comments*

The overall response to the content of the model was positive and comments highlighted the helpfulness, usefulness and clarity of the information provided. The Commercial Lawyer observed that she did not consider the model novel because as " a lawyer there is not a lot of new information that I did not already know" (LP2/CM). She however noted that the model "generally sets out clearly how different rights can be acquired"(LP2/CM).

The Freelance Shoe Designer found the model to be "very clear, easy to comprehend and very informative"(D1/CM). The Academic Lawyer wrote that he " thought the model was useful and would be good for designers"(LP1/CM). The Design Officer at the Patent Office also found the information provided in the "model helpful"(DA2/CM). The Design Consultant found it to be comprehensible, well considered and very informative"(D3/CM).

IV. *Existing policies on intellectual property: Positive and Negative Comments*

The model made no mention or reference to policies on intellectual property. The literature review however shows that international and domestic competitiveness will increasingly be dependent on abstract intellectual properties, the economic rights associated with them and the ability to enforce these rights (Chartrand 1995). The representative from ACID highlighted the importance of having policies on intellectual property.

" We have retailer codes of conduct inviting major retailers to publicly declare their policy on the protection of originators and each ACID member signs a statement saying that they will not deliberately or knowingly copy the designs, products, name or trading style of another company or business" (DA1/EP).

The Freelance Graphic Designer who observed that "I think most freelance designers (myself included) never set up some kind of contract with clients detailing the property rights on design" (D2/EP) highlighted the need for designers to also have policies concerning their work.

V. *Copyright: Positive and Negative Comments*

On the issue of copyright the representative from ACID concurred with the findings and observed that " As a statistic approximately 85% of successful settlements for ACID members in 150 actions have been based on unregistered designs. Providing an audit trail of every design and having access to an audit trail is key to pursuing infringement as speedily as possible"(DA1/CR). She argued that ACID have developed a " ACID logo which is used on product marketing material, websites, labelling etc to communicate such a message. Many of our members use it with a simple copyright ownership statement"(DA1/CR).

The Design Officer from the Patent Office however disagreed with the idea that "it is sufficient to protect only copyright because design registration is considered more important than copyright and unregistered designs"(DA2/CR).

VI. *Employment contracts: Positive and Negative Comments*

The Freelance Graphic Designer highlighted how the lack of knowledge on intellectual property rules has an impact on contractual relations when he observed that "worries about clients not accepting work but then going elsewhere and implementing the designs with other designers or design companies are not uncommon"(D2/EC).

The representative from ACID also noted that one of ACID's aims "is to provide our members with simple, practical explanations of IPR's and provide self-help tools such as generic confidentiality and intellectual property agreements which can be used as a standard part of terms and conditions of business"(DA1/EC). The self-help tools developed by ACID focus mainly on issues relating to the transfer or assignment of rights which is different from the proposed model that is primarily concerned with providing designers with a tool that explains how they acquire rights during the design process. Both the proposed model and the self-help tools provided by ACID however compliment each other because they represent different facets of the relationship between design and intellectual property rules.

5.6 Chapter Summary

The respondents made comments on the strength and weaknesses of the model.

The main weaknesses of the model: The main weaknesses of the model identified by the respondents included the lack of an in-built mechanism that helps people understand what elements of a design should be protected under intellectual property rules/ laws. Furthermore, the predominance given to copyrights and unregistered design rights at the expanse of illustrating the process of registering formal design rights. In addition, some of the respondents felt that the model could have included other rights such as trademarks.

The main strengths of the model: The respondents found the proposed model to be clear, helpful and useful and they had no problems in identifying the key stages of the design process in relation to the allocation of rights. For example, 50% of the respondents indicated that they agreed that the model was helpful in illustrating how property rights are allocated to explicit design knowledge and 37.5% strongly agreed (see Table 5.9 on page 133). In addition, 75% of the respondents gave the overall model a positive rating between 8 and 10 points and the remaining 25 % a rating of 6 points (see Figure 5.6 on page 135).

The respondents cultural knowledge of the non-designers allowed them to not only make constructive comments on the limits and benefits of the model but also raise a number of important issues.

1. The role of property rights in the distribution and exchange of knowledge within the public domain, for example, the need to register designs prior to any publication, was seen as a method of safeguarding knowledge as private property once it enters the public domain.
2. The need to make knowledge of intellectual property rules visible through the use of a logo or visible sign as a means of deterring design piracy and protecting brands.
3. The importance of having strategies and policies on intellectual property in any business or employment agreements that entails the exchange and transfer of knowledge.

4. The importance of registered designs in business strategies.
5. The importance of data management or audit trails as a means of avoiding expensive legal court cases.

The cultural knowledge of the designers limited their ability to engage in the debate not only on the limits and benefits of model but also on the important issues raised by the non-designers. The overall responses of the designers focused mainly on the content of the model with the exception of the Freelance Graphic Designer. The designers were not as critical of the model probably because they lacked sufficient knowledge on the intellectual property rules. They lack of knowledge however is indicative of the separation within design education and practice of the creative and business function of design.

5.6.1 Implications for the Proposed Model

According to Lewis and Bonollo (2002) the validity and utility of a model can be tested at two levels, (a) retrospective validity and (b) the predictive validity. In the former (a) observations of past design projects can be shown to fit the model and in the latter (b) the model can be successfully applied to make predictions about property-related issues in future design projects. In other words predictions can be made on the major tasks required for the successful completion of design projects and the resources to be committed to these tasks. The proposed model seems to have satisfied the information needs of the designers because it fitted their observations of the key stages of design projects that they have worked on in the past. The non-designers considered the proposed model an accurate description of how rights are allocated to design knowledge during the key phases of the design process. On the matter relating to the predictive validity and utility of the model the respondents comments seemed to indicate that the model served an important function in assisting designers:

- to consider adopting measures concerning the safeguarding of knowledge once it enters the public domain
- to consider the need for a logo or visible sign that acts as a statement of ownership for work protected by copyrights or unregistered designs
- to consider the need to identify the most suitable method of protecting their knowledge
- to consider the need for a generic confidentiality and intellectual property agreements which can be used as a standard part of terms and conditions of business
- to consider the need for more information on the most appropriate methods of protecting their knowledge
- to consider adopting measures for data management or the archiving of knowledge generated during the design process.

The criticisms of the respondents with respect to the model could also be the result of other factors. For example the Patent Officer and Commercial Lawyer both felt that more emphasis should have been put on how designers acquire registered design rights. The model focused on both the unregistered and registered design rights on the assumption that they are some industries, which prefer to invest in copyright protection. For example, Disney opt to ensure copyright protection for any drawings and cartoons because they are long-term rights that effectively allow them to control the entertainment market. On the other hand, a company like Nokia will resort to registered design rights that are medium term rights to protect its mobile phones because they are fast moving goods with a short-life shelf.

The researcher chose to focus on copyright and unregistered design rights, for a number of reasons. First, because the interviews showed that the majority of designers do not seem to register their designs and an audit trail would allow them to counter any cases of design infringements. In addition, the allocation of rights during the design process begins when design knowledge is first made explicit. Furthermore, as the respondent from ACID noted 85% of successful settlements for ACID members in 150 actions have been based on unregistered designs. Second, because they are the most common and cost-effective methods of acquiring property rights to design knowledge.

Conclusions and Recommendations

6. General Discussion

Chapter six includes an examination of the research process used in the study and general discussion.

6.1 Critical Evaluation of the Research Process

The main objective in trying to establish an appropriate methodology when undertaking a research project is to ensure a structure and foundation which guides and directs the research in a systematic manner. According to Archer (1995): "in every case of research conducted for the purpose of submitting for an academic degree, it is the quality of research methodology that will be of paramount importance to the Examiners".

In seeking a systematic approach to the study the most appropriate method was considered the one that would allow the researcher to achieve the aims and objectives of the research. As a consequence the design of the research adopted research techniques associated with action research such as self-administrated questionnaires and interviews. The main advantage of the research techniques associated with action research selected was the flexibility they provided, for example:

- self-administrated questionnaires facilitated the collection of data from a large sample
- interviews allowed the researcher to collect detailed information from respondents with special knowledge, skills and experience.

In addition, adopting action research methods allowed the research to be undertaken within the financial and logistical constraints of the project. Another strength of the research process is that it also offered a multi-method approach with regard to data analysis. For example, the coding process was used in reducing the qualitative data into manageable units for data analysis. The main weaknesses of the research process concerned the design student survey and elite interviews. With hindsight the design student survey could have been developed as an on-line survey open to design students from other universities. An on-line survey open to design students from other universities would have been more helpful because the larger sample more adequately represent the diversity of the population. In addition, it would have allowed the researcher to compare and contrast data from different design institutions. In addition, the design of the questionnaire could have been approached differently. For example the focus of the questionnaire could have been more on the design students attitudes to intellectual property rules. This is because it would have provided more information on their perceptions of the role of intellectual property rules within design.

A major concern was also to what extent value systems impinge on the collection and analysis of data. For example, the literature search was directed mainly by the researcher and therefore it represented the researcher's own value systems. In the elite interviews the researcher was dealing with the value systems of the interviewee. As a result, the interviewer's body language, how they ask questions and respond all contribute to creating either a negative or positive dialogue. In addition because the interviews are based on the value judgements of both the respondents and interviewer the question of reliability becomes an issue in data collected using interview techniques. In order to maintain an element of objectivity in the interpretation of data a constant comparison was made with the data collected from the literature search and design student survey.

Furthermore, the research design did not provide a specific method for testing the validity and utility of the proposed model. The validity and utility of the model was tested soliciting the views of a group of designers and experts on the retrospective and predictive validity and utility of the model. In other words does the model fit the process by which property rights are allocated to design knowledge during the design process (retrospective)? Second, would the model assist in improving how they manage their rights during and after the design process (predictive)?

6.1.1 Implementation and Outcomes of the Research Process

The aims and objectives of this research were to investigate the reasons intellectual property rules affect design, and identify the nature of this complex relationship. The knowledge acquired could then be used in the development of a model that explains or describes to designers the role of the property rights that regulate and protect their work. The objectives of the project were implemented and recorded in Chapters 2-5 (see Figure 6.1)

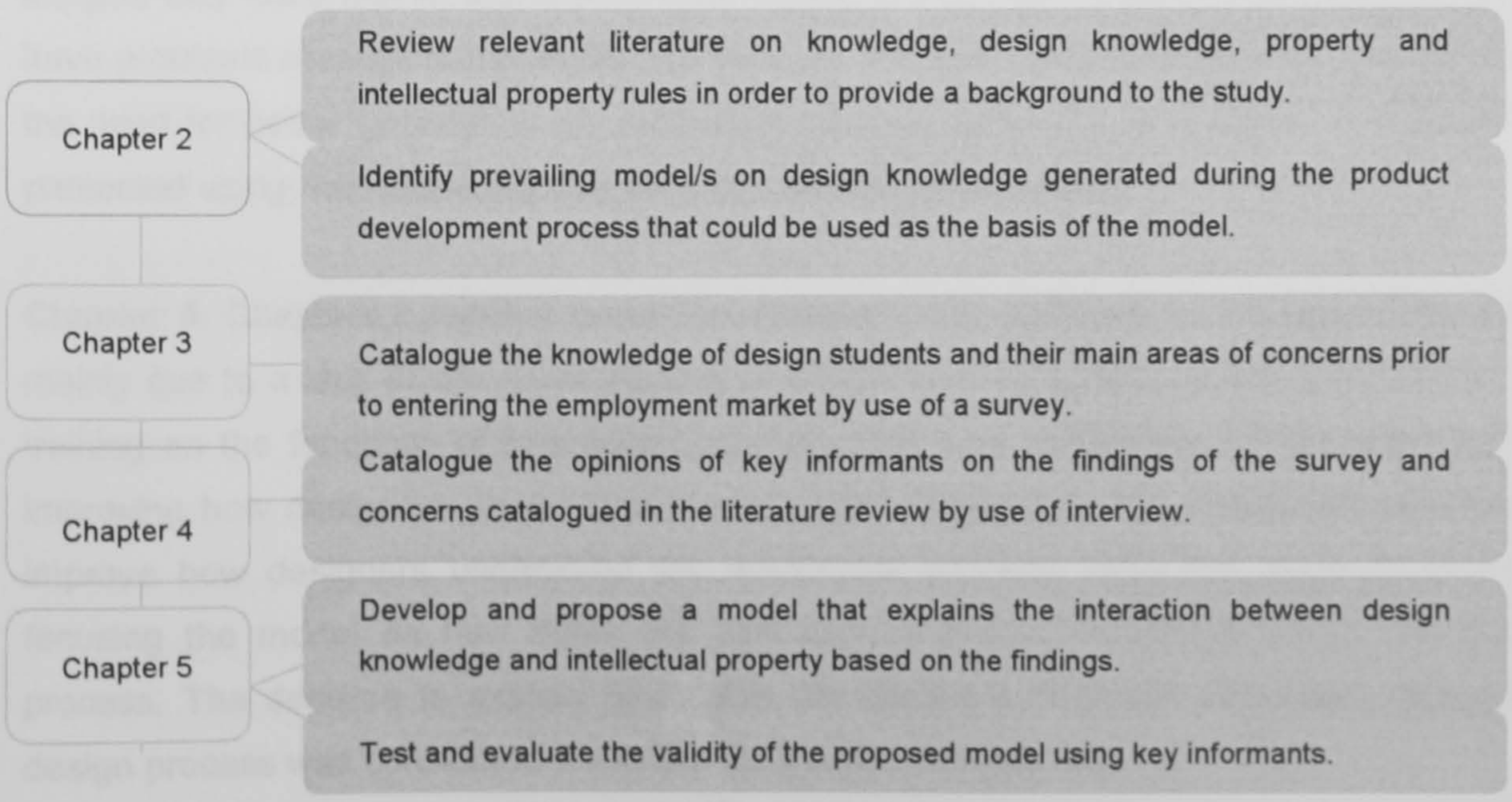


Figure 6.1: Chapters detailing outcomes of the research process

Chapter 2: The secondary research formed the conceptual basis for the project. It included a comprehensive review of the texts concerning intellectual property and property rules. The main purpose was to identify the reasons why they affect the design community. The literature review was then extended to include literature on the key functions and role of knowledge and models on design knowledge with the aim of providing a practical framework for the proposed model. In order to identify the key stages when design knowledge is allocated rights during the design process, the literature review addressed the different methods used in allocating property rights to design knowledge.

In addition, the literature review also included a comprehensive analysis of the current employment trends and attitudes of designers towards intellectual property rules in order to identify any areas of concern. The importance of the review to the study is that it helped to identify the reasons intellectual property rules are an important part of the design process. In addition the review helped the researcher to identify the reasons why designers have problems in managing their rights. For example, some of the reasons identified included the lack of formal training in areas such as copyrights and the assignment of rights, plus the complex legal language surrounding intellectual property laws. This information was then used to contribute to the development of the questionnaire for the design student survey and the prompts for the elite interviews.

Chapter 3 and 4: The primary research was divided into two main parts, the survey of the design students (Chapter 3) and the elite interviews (Chapter 4). Though the findings of the survey of the design students cannot be generalised it helped to catalogue the problems the respondents had concerning the training and application of intellectual property rules within design education. Some of the findings of the design student survey were also used in the development of the prompts for the elite interviews. The elite interviews offered important insights and were rich in information with regard to the main reasons practising designers have problems managing their rights and how the situation could be improved. For example, the need for better information on intellectual property rules that is written in a language or presented using methods which are easy to understand and apply.

Chapter 5: Chapters 2,3 and 4 found that designers had problems in managing their rights mainly due to a lack of adequate training or information. The need for better information or training on the functions of intellectual property rules was considered an important step in improving how designers protect and manage their knowledge. The researcher selected to improve how designers understand the intellectual property rules that apply to them by focusing the model on how rights are allocated to design knowledge during the design process. The decision to explain how rights are allocated to design knowledge during the design process was considered important for a number of reasons.

First, Chapters 2 and 4 showed that with design knowledge[28] unless it is kept hidden, once it enters the public domain is easy to copy or duplicate. Second, Chapters 2,3 and 4 showed that the main function of Intellectual property rules is to ensure knowledge can be owned as private property in order to control any unauthorised copying or duplication of knowledge.

Due to the existence of intellectual property rules the design process is also a property generating process whose main function is to generate knowledge/ property that is then privatised through the allocation of rights. This means that because knowledge generated during the design process is considered private property it cannot be duplicated or copied without the explicit authorisation of the designer or the legal transfer of the rights to copy or reproduce work. As a result any transfer and exchange of design knowledge constitutes a property transaction over the rights to use and reproduce work. Chapters 2 and 4 showed that designers lack sufficient knowledge on the property implications of their work. On the other hand, the majority of companies and retailers have strategies and legal budgets that take advantage not only of the loopholes in laws but also the lack of knowledge of designers, the model therefore focused on explaining how rights are allocated to design knowledge during the design process.

The model was tested soliciting the views of a group of designers and experts on the retrospective and predictive validity and utility of the model. The model was considered by the respondents to be an accurate summary of how rights are allocated to design knowledge generated during the key stages of the design process. On the matter relating to the predictive validity and utility of the model the respondents comments seemed to imply that they viewed the model as a planning tool that could assist designers working on design projects:

- to consider adopting measures concerning the safeguarding of knowledge once it enters the public domain
- to consider the need for a logo or visible sign that acts as a statement of ownership for work protected by copyrights or unregistered designs
- to consider the need to develop business plans concerning the management of data generated during the design process and registration of designs
- to consider the need for a generic confidentiality and intellectual property agreements which can be used as a standard part of terms and conditions of business
- to consider the need for more information on the most appropriate methods of protecting their knowledge
- to consider adopting measures for data management or the archiving of knowledge generated during the design process.

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[28] Like scientific, technical or cultural knowledge.

The main weakness of the model was that it did not include a time or data management plan. For example, under the Registered Community Design Right, designers officially have a grace period of one year in which to market their designs before they need to register them at the Patent Office. In addition, the model did not highlight the fact that the two methods of allocating rights illustrated in the model represent the different options open to designers and it is up to the individual to determine which method applies to their work and business strategies.

There are therefore a number of areas in which the model could be modified. First, by extending the model to include information on time and data management; for example the need to ensure copies of work are signed before being archived. Second, by highlighting that the protection of copyright or registered design rights is optional and not as rigid as the current model seems to imply. Third by extending the model to include the financial costs in terms of registration and non-registration..

6.2 Analysis of Findings

The secondary and primary research highlighted a number of important issues. First, the main purpose and functions of intellectual property rules within society. Second, the nature of the relationship between design and intellectual property rules and recommendations on how to improve the relationship between design and intellectual property rules.

6.2.1 Purpose and Functions of Intellectual Property Rules

The literature review found that capitalism depends heavily on markets and private property rights and unless knowledge is capable of being owned the incentive to create it will be lacking. The secondary research showed that currently knowledge is regulated by a set of intellectual property rights, and these rights include copyrights, unregistered design rights, registered design rights, trademarks, image rights and patents. For example literary works protected by copyrights which serve a dual purpose. First, they protect the moral right of the author to be identified as the originator or creator of a work even after the transfer of the publication right and also the right of the author to object to any alteration or deformation of work without their authorisation. Second, they protect the rights of the author to sell or reproduce work and also to transfer the rights to a third party for a monetary or economic value. In some circumstances the moral rights and the rights to reproduce or sell work are considered more valuable than the actual work.

Intellectual property rights affect designers because they are considered a source of knowledge. Design knowledge generated during the design process is protected mainly by copyrights, unregistered and registered design rights. Copyrights and unregistered design rights are automatically allocated to any design knowledge recorded during the design process, for example working drawings, rough sketches and life-scale prototypes. Registered design rights are allocated to design knowledge by formally registering photographic images or illustrations of the design knowledge at the Patent Office. Unregistered and registered design rights only protect the monetary rights of the designer whereas copyrights protect both the moral and monetary rights.

Unless designers keep their knowledge hidden, insist on confidentiality agreements or acquire the rights to their work, designers have no control over the use or reproduction of work once it enters the public domain. Designers wishing to safeguard their knowledge using intellectual property agreements can take a number of steps. First, they can register their designs at the Patent Office. Second, if they lack sufficient funds they can ensure they have documented evidence or an audit trail of the design process to protect their copyrights or unregistered design rights.

Third, they can also develop a visible copyright or unregistered rights symbol or ownership statement to protect their unregistered rights. In addition, in the exchange or transfer of designs protected either by copyrights or unregistered design rights designers can either include the value of the rights in the overall fee or have a separate agreement for the transfer of rights allocated to work.

In addition, property rights to knowledge also need to be managed responsibly because of their ethical dimension. For example, according to the respondent from the Chartered Institute of Patent Agents only: "*5% of patented knowledge*" (IS2CIPA) is based on original ideas. The majority of patented knowledge is adapted from existing knowledge already within the public domain. For instance, James Dyson's cyclone vacuum cleaner was based on the cyclone principle used to remove dust from the air in industrial plants (Roy 1993). The existence of intellectual property rules however means that general knowledge that is already within the public domain has the potential of being privatised impeding access to those who lack the financial resources purchase it. The decision to claim rights to knowledge is both a financial and moral decision, which should not be treated lightly.

6.2.2 Design and Intellectual Property Rules

Though the findings of this study cannot be generalised they seem to indicate that the investment made in integrating any formal training on intellectual property rules within design disciplines has often been quite uneven and inconsistent. As a result young design graduates often leave colleges without the appropriate skills or competencies to manage what is increasingly becoming an important aspect of their work. The study found that in general designers have a poor understanding of how they acquire, protect and manage the transfer and exchange of their rights to work

6.2.2.1 The Acquisition and Protection of Economic and Moral Rights

In the design student survey the majority of the respondents seemed to have very little knowledge of issues relating to how copyright and registered design rights are acquired. For example, 90% of the respondents indicated that they did not know how copyrights are acquired. In addition, 92% of the respondents indicated they did not know the process of acquiring registered design rights. Similarly, the findings from the elite interviews seemed to indicate that practising designers also have a poor understanding of how they acquire copyrights or registered design rights as a result they:

- end-up having to resort to expensive and unnecessary legal actions because they did not take the necessary steps to protect their rights to work prior to entering the public domain
- are more likely to unwittingly transfer their rights without negotiating favourable terms and conditions to global, continental and national conglomerates

- are less likely to add a property value to their work when exchanging or transferring design knowledge
- are less likely to have strategies or policies for policing or benefiting from their rights and only seek information after having work copied
- are less likely to register work at the Patent Office or make use of design agents
- are more likely to view intellectual property rules as an antiquated and complex system.
- are more likely to copy work under the belief that they will not be found out
- are less likely to undertake any checks or trace the origins of work when clients present them with designs they want adapted or copied
- are more likely to base their knowledge on myths rather than concrete facts

Within an affluent society design knowledge has become an important factor in the differentiation of products and services and as a result the higher the intellectual content and symbolic value of a product or service the more likely it will be illegally copied or reproduced. One of the main rights of the owner of a registered right or copyrights is the right to use or reproduce work.

In cases of the unauthorised transfer of the rights to use or reproduce work the owners can seek legal recourse for either compensation or removal of the product from the public domain. In the design student survey, over 90% of the respondents indicated they did not know what the main rights of the owner of a registered design or a copyright owner were.

Worryingly the elite interviews also showed that practising designers working as freelance designers or in small businesses often contribute to the illegal coping and reproduction of work, mainly because they are ignorant of the process of design and the law. Any exchange or transfer of design knowledge constitutes a property transaction over the economic and moral right to use and reproduce designs. By reproducing work without the explicit permission of the owner practising designers seem to be failing to recognise the fact that they are infringing on the economic and moral rights of others.

6.2.2.2 Managing the Exchange and Transfer of Rights

In fulltime employment contracts, the employer and not the in-house designer is considered the legal owner to the rights to any design knowledge generated during the course of the employment contract. In commissioned work when external designers are used the rights belong to the designer and the transfer or assignment of these rights only takes place if it is in writing and signed by both the designer and commissioner of work.

The research found that innovative businesses normally seek control of the rights, in particular the moral rights to work, because it is considered bad for business if they have to acknowledge that a design did not originate from them. Worryingly in the design student survey only 12% of the respondents indicated they knew what the assignment of a design referred to.

The literature review also showed that freelance designers and designers have problems in managing their work in general compared to designers working for large firms mainly because they are less likely to invest in training or business plans. Similarly, in the elite interviews the majority of respondents felt that freelance designers and designers working in small business had a poor record of managing the assignment or transfer of their rights. For example, the respondent from the Patent Office noted that "o*ften many of the problems brought to our attention are because people have not understood until too late that they have assigned their rights" (IS2DO).*

The respondents in the elite interviews seemed to imply that the main problem for many designers, especially young freelance designers, is that often because they are not taught how to negotiate their rights as part of good business practice. As a result, they lack the necessary skills to manage the transfer and exchange of the moral rights attached to their work. The respondents in the elite interviews however acknowledged that though in many cases designers gain no advantage in owning either the economic or moral rights to their work they can use them as leverage in negotiating favourable financial terms and conditions.

The elite interviews showed that one of the reasons design education has failed to instil some knowledge of intellectual property rules can be attributed to the traditional separation between creativity and technology within design education. In industries driven by technology, such as the pharmaceutical industries an understanding of the patent system is seen as essential in order to ensure control over any new technology. Design on the other hand originated from the art and craft industries and the main focus of design education ever since its inception has been to improving the creative and practical skills of aspiring designers. As a result many designers leave colleges without any relevant training on how to manage the rights allocated to the knowledge they generate.

The respondents felt that because of this lack of investment, in the designer/client relationship it is often the client who determines the exchange value of the rights to their work. In addition, because of the lack of investment in training young designers or designers working in small businesses often forced to undergo an unnecessary steep and sometimes a costly learning curve in order to acquire the necessary skills or knowledge on how to protect and mange their rights.

6.2.3 Recommendations

While the respondents in the elite interviews recognised that:

- the complex legal language surrounding intellectual property rules
- the high cost of policing rights
- the inconsistencies in the interpretation of legal terms
- differences in national laws and business standards
- and the financial and legal resources of established companies

contributed to the problems designers have with the property rules that apply to them. They felt that more effort should be made:

- to clarify the function and purpose of intellectual property rules within design and design education
- to encourage the management of rights as part of good business practice in degree courses so young or freelance designers do not lose their sweat equity[29]
- to provide designers with better information on copyrights and registered designs rights that avoids any use of complex language and is easy to understand and apply
- encourage greater co-operation between designers and high street retailers on establishing a code of conduct on issues relating to intellectual property rights
- improve how designers keep records of design documentation generated during the design process, for copyright purposes as part of good business practice

The respondents in the elite interviews considered the introduction of adequate information on how to manage intellectual property rules in degree courses as a key to improving how they manage their rights once they enter the employment market. Interestingly, 60% of the respondents in the design student survey also supported the idea that intellectual property laws should be part of their training. For example one of the respondents observed: "*intellectual property should be taught as I do not understand anything about this, and I feel I should by my 3rd year before I go out to work" (FW/GC).* In addition, some of the respondents felt that the formal training of intellectual property rules could also serve to enhance their marketability on the employment market.

[29] The investment in time and labour spent in producing new and innovative ideas.

6.3 Chapter Summary

Chapter 6 has served a dual purpose as it has allowed the researcher to reflect on the research process in order to identify the main strength and weaknesses of the research methodology used, as well as to summarise the main findings of the research. Undertaking a research project is not an easy task and researchers have to constantly analyse and re-analyse the reliability and validity of the research methods they select. The main finding from the research was that in order to improve how designers understand intellectual property rules they need 'better' not simply 'more' information on how they acquire, protect and manage their rights. In addition, this information should be developed as part of the business skills training of young designers while they are still in their degree courses.

Chapter 7: Conclusions and Recommendations

According to Bertola and Teixeira (2003) one of the main strengths of global corporations is the capacity "to train highly specialised professionals, develop knowledge of new technologies and make risky investments in research. These challenges are a problem for most small companies, but for global corporations they are major competitive advantages". For many innovative companies designers represent an important source of knowledge and the issue of rights to knowledge, creates a constant source of tension between designers/clients and designers/general public.

The fact that these tensions exist is also indicative of the absence of some form of formal training on the competencies for managing rights as a resource or commodity within design education and practice. Prior to this study research on design and intellectual property rules has tended to focus on the problems designers have with intellectual property rules, how designers can either improve or apply the rules that to them (see Chartrand 1996; Dickinson, Coles and Woods 1997; Creative Industries Report 1999; Benghozi and Stangata 2000; Creative Industries Mapping Document 1998; Vad Lane-Rowley 1997).

None of these studies, however have tackled in any detail the function and purpose of the property rights surrounding design knowledge. One reason could be attributed to the complex philosophical and legal theories surrounding the issue of property rights. In addition, one of the main limits of previous studies is that they have made the understanding of intellectual property rules rather than the management of property rights the central themes of their studies. By contrast, this study has made the function and purpose of property rights its main focus because it was felt that while intellectual property rules continuously change with time the principals behind them remain the same. The new knowledge generated by this research can, therefore be listed as follows:

- the study seeks to define what property rights are, their purpose and functions within design
- the study seeks to define what property is and how designers through the design process generate property
- this study illustrates how and why designers are considered owners of the knowledge they generate and why they should clarify the legal ownership of rights when transferring or exchanging work
- last but not least this, study has sought to reduce the complexities of how rights are allocated to explicit design knowledge into a simple model based on the design process (Figure 7.1)

7.1 Proposed model

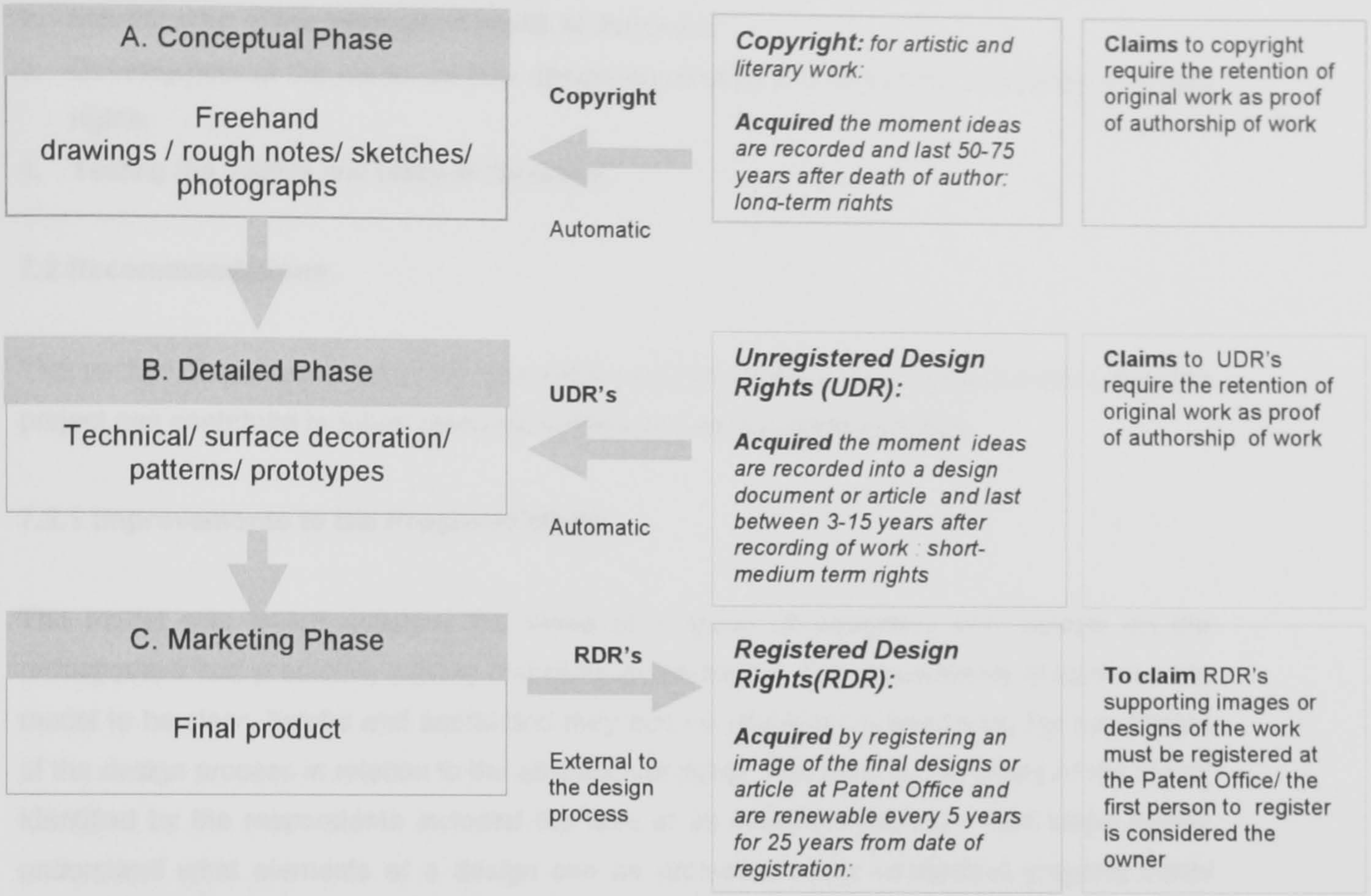

Figure 7.1: Model illustrating the allocation of rights to design knowledge : Adapted from Rodgers and Clarkson (1998)

The main aim of the model is to illustrate to designers a number of key issues.

First, the main methods used in allocating property rights to design knowledge during the key stages of the design process in order to encourage designers to monitor and plan for the unregistered rights and registered rights that they acquire informally and formally during the design process.

Second, the duration of rights in order to ensure designers understand the time scales surrounding the ownership rights. For example, an entertainment company like Disney will seek to control copyrights to work because they are long term rights, whereas Nokia will seek to control the registered rights to designs because mobile phones have a short shelf life.

Third, the main methods by which designers can ensure they have either informal or formal proof that they actually own the rights to their work when negotiating the terms and conditions to contracts or when they encounter cases of design piracy.

A summary of the main results of the research are listed below.

1. Identification of the function and purpose of intellectual property rules within design.
2. Identification of the information needs of designers.
3. Development of the model on how design knowledge is formally and informally allocated rights.
4. Testing the validity and utility of the model.

7.2 Recommendations

This section discusses the improvements that could be made to the proposed model, how the project can contribute to future research studies and design methodologies.

7.2.1 Improvements to the Proposed Model

The model was tested soliciting the views of a group of designers and experts on the retrospective and predictive validity and utility of the model. The respondents considered the model to be clear, helpful and useful and they had no problems in identifying the key stages of the design process in relation to the allocation of rights. The main weaknesses of the model identified by the respondents included the lack of an in-built mechanism that helps people understand what elements of a design can be protected under intellectual property rules/ laws. Furthermore, the predominance given to copyrights and unregistered design rights at the expense of illustrating the process of registering formal design rights. In addition, some of the respondents felt that the model could have included other rights such as trademarks. The proposed model could therefore be improved in a number of areas and these include:

- extending the model to include information on time and data management, for example the need to ensure copies of work are signed before being archived and the financial costs of setting up a database
- extending the model to include information on the different stages of registering designs at the Patent Office plus the financial costs of each stage
- highlighting that the protection of copyright or registered design rights is optional and not as rigid as the current model seems to imply
- extending the model to include other rights such as trade marks

7.2.2 Future Research Studies

Currently design like any other discipline operates under a system of conventions and rules. These conventions and rules in turn determine how designers consume, interpret and manage information. According to Owen (1998) "design and design education, though young in comparison with many disciplines, has had sufficient time to move from fledging practice to responsible discipline". Design education needs to maintain the profile of design not only as an attractive but also a profitable industry to work in (Occupations: The Essential Reference Book for Careers and Jobs 1999). In order to contribute more knowledge on how designers manage their knowledge future research studies could examine:

- the factors that prompt designers to select design as a profession to ensure the introduction of any formal training in intellectual property rules is not counterproductive
- the factors that motivate designers to want to retain control of their rights
- whether current advice on intellectual property rules is based on myths or facts
- the importance designers place on rights when negotiating work-related contracts in order to identify how standards could be improved
- the strategies and policies of young freelance designers concerning their rights in order to identify how standards could be improved
- the management of property rights within leading design-related companies such as the London Underground, Disney, and Marks and Spencers

7.2.3 Design Methodologies

During the course of this research one of the main problems, the researcher had was in identifying an appropriate method for analysing qualitative data. The researcher sincerely hopes that the methods used in analysing qualitative data in this project will help to illustrate to other design researchers how to:

- make use of the coding process when breaking down qualitative data into manageable unit
- categorises qualitative data into themes for data analysis and interpretation

7.3 Chapter Summary

Chapter 7, focused on the main results of the research and the areas that could be improved in the proposed model as well as making recommendations for further studies.

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Appendices
and
Glossary of Terms

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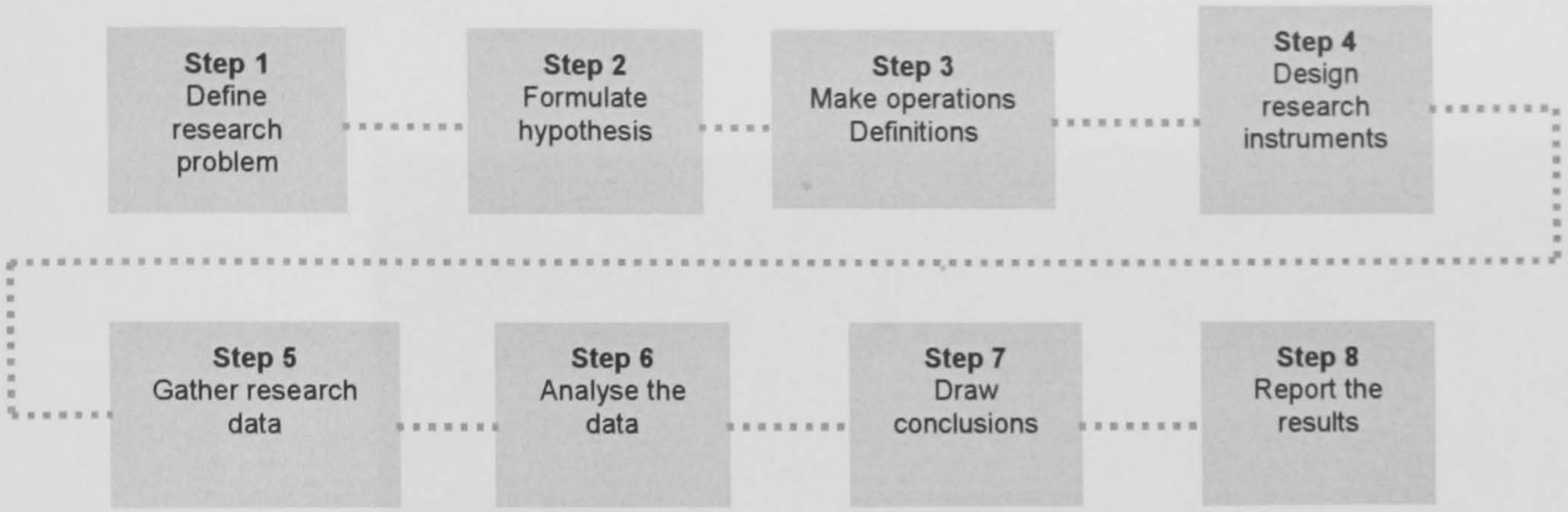
List of Appendices

Appendix A

Social Science Research Pattern



Linear Sequence in Social Science Research: Spadley 1980

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Appendix D

Survey Questionnaire Design

DESIGN AND INTELLECTUAL PROPERTY LAW SURVEY

In a recent study on the Skills Requirements in the Creative Industries (1999) funded by Department of Education and Employment the research found that the creative industries are in many respects at the forefront of changing work patterns in the labour market. The shift in working patterns of designers identified by the report, means that designers will increasingly be entering into property relations with others concerning the transfer and exchange of design knowledge. The objective of this survey is to understand what knowledge young design graduates have of intellectual property prior to entering the employment market. The questionnaire is divided into three parts: personal details, questions on intellectual property and comments. Please note data collected from the survey will be kept confidential. I would appreciate if you could return your completed questionnaire to your course leader with any additional information you may wish to add, please accept our thanks.

Part A: Personal Details

Name ..... Age.....

☐ Male ☐ Female

Course Details

Course ..... Year .....

☐ Full-time ☐ Part-time

Course Leader
.....

Future Employment Prospects

☐ Freelance/ Agency ☐ Full-time Contract ☐ Short-term Contract

☐ Buying / merchandising ☐ Own brand ☐ Nothing to do with design

☐ Postgraduate ☐ Teaching ☐ I do not know

Part B: Please complete the following questions (by ticking the appropriate box) based on your knowledge and experiences of intellectual property.

1. Do you know a method used by designers to acquire the copyright to a design?

☐ Yes

☐ Vague Idea

☐ Do not know

2. Do you know the process used by designers to acquire the registered rights to a design?

☐ Yes

☐ Vague Idea

☐ Do not know

3. Do you know what are the main rights of a copyright owner?

☐ Yes

☐ Vague Idea

☐ Do not know

4. Do you know what are the main rights of the owner of a registered design ?

☐ Yes

☐ Vague Idea

☐ Do not know

5. Do you know what the 'infringement' of a design refers to?

☐ Yes

☐ Vague Idea

☐ Do not know

6. Do you know what the 'assignment' of a design refers to?

☐ Yes

☐ Vague Idea

☐ Do not know

7. How would you rate the training you received on copyright or registered design rights during the course of your degree?

☐ Sufficient

☐ Insufficient

☐ Do not know

8. Do you think information on intellectual property laws should be part of the design curriculum ?

☐ Agree

☐ Disagree

☐ Do not know

Part C: Please add any comments elaborating on your responses to Questions 1 to 8. Positive and negative comments will be appreciated. Thank you for your participation.

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Appendix E

Breakdown of survey results

Overall Results: Demographics and Employment Entry Points

Gender	CD	CDP	DM	FD	FW	ID	MJ	MM	PD	SD	TM	Total
Male	1	0	0	6	1	4	1	6	16	1	2	**38**
Female	7	4	5	10	4	8	6	0	7	14	9	**74**
Total	**8**	**4**	**5**	**16**	**5**	**12**	**7**	**6**	**23**	**15**	**11**	**112**

Age	CD	CDP	DM	FD	FW	ID	MJ	MM	PD	SD	TM	Total
15-19	0	0	0	0	0	0	0	0	0	0	0	**0**
20-24	6	3	5	12	5	11	6	4	22	15	8	**97**
25-35	2	0	0	4	0	1	0	1	1	0	3	**12**
35-44	0	1	0	0	0	0	1	1	0	0	0	**3**
45-54	0	0	0	0	0	0	0	0	0	0	0	**0**
Total	**8**	**4**	**5**	**16**	**5**	**12**	**7**	**6**	**23**	**15**	**11**	**112**

Future Career	CD	CDP	DM	FD	FW	ID	MJ	MM	PD	SD	TM	Total
Freelance	3	0	0	2	0	1	1	3	3	2	0	**15**
Buyer	0	3	0	2	0	0	0	0	0	2	6	**13**
Post-Grad	1		0	2	0	1	0	1	1	0	0	**6**
Own Brand	2	0	0	0	0	0	0	0	1	0	1	**4**
Full-time	2	1	3	10	5	3	2	2	1	5	1	**35**
Teaching	0	0	0	0	0	0	0	0	0	0	1	**1**
Nothing to do with design	0	0	0	0	0	2	0	0	1	1	1	**5**
Do not know	0	0	2	0	0	5	4	0	16	5	1	**33**
Total	**8**	**4**	**5**	**16**	**5**	**12**	**7**	**6**	**23**	**15**	**11**	**112**

1. Do you know a method used by designers to acquire the copyright to a design?

Responses	CD	CDP	DM	FD	FW	ID	MJ	MM	PD	SD	TM	**Total**	**%**
Yes	2	0	1	1	0	0	1	1	1	1	0	**8**	**7**
Have a vague idea	0	0	0	0	0	1	0	0	1	0	0	**2**	**2**
Do not know	6	4	4	15	5	11	6	5	21	14	11	**102**	**91**
Total	**8**	**4**	**5**	**16**	**5**	**12**	**7**	**6**	**23**	**15**	**11**	**112**	**100**

2. Do you know the process used by designers to acquire the registered rights to a design?

Responses	CD	CDP	DM	FD	FW	ID	MJ	MM	PD	SD	TM	**Total**	**%**
Yes	0	0	0	0	0	0	1	1	3	2	0	**7**	**6**
Have a vague idea	0	0	0	1	0	0	0	0	0	0	1	**2**	**2**
Do not know	8	4	5	15	5	12	6	5	20	13	10	**103**	**92**
Total	**8**	**4**	**5**	**16**	**5**	**12**	**7**	**6**	**23**	**15**	**11**	**112**	**100**

3. Do you know what are the main rights of a copyright owner?

Responses	CD	CDP	DM	FD	FW	ID	MJ	MM	PD	SD	TM	**Total**	**%**
Yes	1	1	1	0	0	0	1	2	2	2	0	**10**	**9**
Have a vague idea	0	0	0	0	0	0	0	0	0	0	4	**4**	**4**
Do not know	7	3	4	16	5	12	6	4	21	13	7	**98**	**87**
Total	**8**	**4**	**5**	**16**	**5**	**12**	**7**	**6**	**23**	**15**	**11**	**112**	**100**

4. Do you know what are the main rights of the owner of a registered design?

Responses	CD	CDP	DM	FD	FW	ID	MJ	MM	PD	SD	TM	Total	%
Yes	1	1	0	0	0	0	0	1	1	1	1	**6**	**5**
Have a vague idea	0	0	0	0	0	0	0	0	0	1	0	**1**	**1**
Do not know	7	3	5	16	5	12	7	5	22	13	10	**105**	**94**
Total	**8**	**4**	**5**	**16**	**5**	**12**	**7**	**6**	**23**	**15**	**11**	**112**	**100**

5. Do you know what the 'infringement' of a design refers to?

Responses	CD	CDP	DM	FD	FW	ID	MJ	MM	PD	SD	TM	Total	%
Yes	0	1	3	2	2	2	4	5	6	2	2	**29**	**26**
Have a vague idea	2	0	0	1	1	1	0	0	0	1	3	**9**	**8**
Do not know	6	3	2	13	2	9	3	1	17	12	6	**74**	**66**
Total	**8**	**4**	**5**	**16**	**5**	**12**	**7**	**6**	**23**	**15**	**11**	**112**	**100**

6. Do you know what the assignment of a design refers to?

Responses	CD	CDP	DM	FD	FW	ID	MJ	MM	PD	SD	TM	Total	%
Yes	1	1	3	6	0	4	4	1	0	0	1	**13**	**12**
Have a vague idea	0	0	0	1	2	0	0	0	0	0	0	**3**	**2**
Do not know	7	3	2	9	3	8	3	5	23	15	10	**96**	**86**
Total	**8**	**4**	**5**	**16**	**5**	**12**	**7**	**6**	**23**	**15**	**11**	**112**	**100**

7. How would you rate the training you received on copyright or registered design rights during the course of your degree?

Responses	CD	CDP	DM	FD	FW	ID	MJ	MM	PD	SD	TM	**Total**	**%**
Sufficient	0	0	2	4	1	2	2	1	0	0	1	**13**	**12**
Insufficient	2	4	0	6	2	5	0	4	14	6	6	**52**	**46**
Do not know	6	0	3	6	2	5	5	1	9	9	4	**47**	**42**
Total	**8**	**4**	**5**	**16**	**5**	**12**	**7**	**6**	**23**	**15**	**11**	**112**	**100**

8 Do you think information on intellectual property laws should be part of your training ?

Responses	CD	CDP	DM	FD	FW	ID	MJ	MM	PD	SD	TM	**Total**	**%**
Agree	2	2	4	12	4	5	5	5	14	8	6	**67**	**60**
Disagree	0	0	0	1	0	2	2	1	3	0	0	**9**	**8**
Do not know	6	2	1	3	1	5	0	0	6	7	5	**36**	**32**
Total	**8**	**4**	**5**	**16**	**5**	**12**	**7**	**6**	**23**	**15**	**11**	**112**	**100**

Appendix F

Collation of survey comments for thematic categories

Code	Theme Category
ARD	Assignment of rights to a design
CPR	The main rights of a copyright owner
ID	Infringements of rights to a design
MCR	Method of acquiring copyrights
MRDR	Method of acquiring registered design rights
NT	Need for training
RDR	The main rights of the owner of a registered design
TR	Training received

Contour Design

Code	Recurrent Themes
MCR	signing and dating work maybe sending a copy of draft by mail to yourself 2
CPR	other parties do not have the right to copy your work without authorisation 1
ID	the term is familiar but I do not know what it means when someone has taken your idea and used it as their own 2
TR	I have no knowledge of the legal aspects of my work I have no knowledge of intellectual property laws as future employees we should be taught I feel the teaching of IP is particularly relevant to the nature of our course. I feel that it is inadequately covered3

Footwear Design

Code	Recurrent Themes
MCR	I have never being informed of the copyright process1
CPR	The main rights of a copyright owner1
ID	What does this term mean, Copying? 1
ARD	we are set assignments of our work as part of our project1
TR	I have not heard of assignment of designs or infringements of designs before1
NT	IP should be taught as I do not understand anything about this, and I feel I should by my 3rd year before I go out to work we should know our legal rights, options and positions before we begin job applications2

Fashion design

Code	Recurrent Themes
MCR	Post a self-addressed envelope to yourself and do not open envelope.
MCRDR	Is it referring to patents?
ARD	I have heard of the word but do not know what it means
TR	We have had no training on intellectual property

Design Management

Code	Recurrent Themes
MCR	dating and signing your work1
CPR	you have the right and control to the design and your permission is required in order to use your design1
ID	to take over the right of another person if you copy someone work you are infringing on their rights2
NT	Training will make us aware of our rights and how to protect our designs.1

Interior design

Code	Recurrent Themes
MCR	other designers are not allowed to imitate your work or you could take them to court 1
ID	I have an idea but I am not sure infringement is when another designer imitates some of your work I have heard of the term being used but I am not exactly sure I know what it means3
ARD	I do not understand what assignment of a design means so I would not know what to do.1
TR	I am not aware of these important issues that are essential to our future careers very useful information2

Metal work

Code	Recurrent Themes
MCR	write your name and date on draft copies1
MCRDR	Registering your work 1
CPR	you can own the design and can take action for any copying no-one can make use of my work without permission2
ID	someone copies your work without permission1
TR	It would have been really helpful to learn about our rights concerning our designs and work We had no information on IP It would have been really helpful to have a section of the course just on information like this.2

Multimedia design

Code	Recurrent Themes
MCR	you have to register at the Patent Office in London 1
CPR	No-one can make use of my work or any aspects of my work without my permission I am credited as owner I have the right to the design2
RDR	exclusive rights to produce the design 1
ID	Breaking the law of copyright If someone copies or makes a profit from your work without permission2
ARD	I do not understand the term assignment in the context of copyright1
NT	Can be introduced as an option 1

Product Design

Code	Recurrent Themes
MCR	post a draft to myself1
MCRDR	apply to the patent office we have not been taught it and also I have made no endeavour to find out I have heard about it but not enough to understand
CPR	nobody can reproduce or copy my work directly without my consent we have not been taught it and also I have made no endeavour to find out I have heard about it but not enough to understand3
RDR	nobody can reproduce or copy my work directly without my consent we have not been taught it and also I have made no endeavour to find out I have heard about it but not enough to understand3
ID	when you design breaks copyright law does it mean your design has been stolen when you cross the line in copyright terms and your product is similar to another we have not been taught it and also I have made no endeavour to find out I have heard about it but not enough to understand5
TR	it sounds interesting but I do not know enough about it to pass a judgement to complicated only through my own research no guidance from the university I have had no training, have no idea and I am not confident about talking about my ideas Just looking at the terms referred to I have realised I have no idea this form mentions terms I have not being formally taught5
NT	Probably the most important aspect about product and furnishing design. How can I make any money if my ideas do not belong to me1

Surface decoration

Code	Recurrent Themes
MCR	As a guess dated and photographed plans 1
CPR	as a guess money is paid by people who use your ideas1
RDR	prevents others from using my designs 1
ID	I have heard about it but not enough to understand1
NT	I do not know what IP is, I suppose if should be included if it is important to industry IP should be included so we have a basic training2

Textile Management

Code	Recurrent Themes
MCRDR	Apply to the patent agency and pay for rights 1
CPR	legally you have the right to take anyone to court if they copy your designs must be aware and approve usage of work Have the say so with regards to who ever uses your designs and can sue anybody using you designs, logos, name etc.3
RDR	Have the say so with regards to who ever uses your designs and can sue anybody using you designs, logos, name etc.1
ID	Have heard of it but cannot remember I think infringement is the terminology for doing something which is not allowed and has a negative impact on something i.e. infringement of rights breaking the law or not following guidelines 3
NT	Probably more relevant to design training is needed to know what terms mean but I do not know anything of the different processes of acquiring copyrights or registered design rights It would be useful so no laws can be broken and you can show more capabilities to your employer/ interesting and necessary to learn if you are going into a design career 3

Appendix G

Collation of patterns in knowledge/negative and positive of survey comments

Code	Comment
CR	cannot remember
CTR	critical of training received
GC	general comment
QY	query
RT	recommendations on training
SLK	shows lack of knowledge
SSK	shows some knowledge

Comments	CD	DM	FD	FW	ID	MJ	MM	PD	SD	TM
ARD	*	*	1SLK	1SLK	1SLK	*	1SLK	*	*	*
CPR	1SSK	1SSK	*	*	1SSK	2SSK	2SSK	1SSK 1SLK 1CR	1SSK	3SSK
ID	1SSK 1SLK	2SSK	*	1QY	1SLK 1SSK 1CR	1SSK	2SSK	3SSK 1SLK 1CR	1CR	1QY 1SSK 1CR
MCR	2SSK	1SSK	1SSK	*	*	1SSK	*	1SSK	1SSK	*
MRDR	*	*	1QY	*	*	1SSK	1SSK	1SSK 1SLK	*	1SSK
NT	*	1RT	*	2GC	*	*	1RT	1RT	1GC 1RT	3RT
RDR	*	*	*	*	*	*	1SSK	1SSK 1SLK 1CR	1SSK	1SSK
TR	3CTR	*	1CTR	2GC	1GC 1CTR	2CTR	*	5GC	*	*

Appendix H

Collation of data from interviews for thematic charts

Emerging themes: Primary Sources

code	Key themes
MBU	**Main barriers to understanding**
mbuCLL	complex legal language
mbuITHPR	inconsistencies in the interpretation of terms and high cost of policing rights
NFT	**Need for more formal training**
nftFIPR	function of intellectual property rules
nftCL	copyright laws
nftIDC	integration into degree courses
MIP	**The management of intellectual property**
mipAR	Assignment of rights
mipDPPS	Data protection policies and strategies
mipDACMC	encourage use of design agents and collective management of copyright

Code	Source code	Similar Views
LL	ISIASF ISIBU IS2CIPA DP1 DP2 IS2DO IS2EPC IS2ACID	IS2CIPA/DP1/ DP2/ISIASF mbuCLL/ mbuTHPR
	Source code	**Dissimilar Views**
LL	ISIASF ISIBU IS2CIPA DP1 DP2 IS2DO IS2EPC IS2ACID	ISIBU / IS2EPC/ IS2DO/ IS2ACID mbuCLL/ mbuTHPR

Code	Source code	Similar Views
TN	ISIASF ISIBU IS2CIPA DP1 DP2 IS2DO IS2EPC IS2ACID	IS2ACID / DP1 / ISIBU nftFIPR nftDC nftCL
Theme	**Source code**	**Dissimilar Views**
TN	ISIASF ISIBU IS2CIPA DP1 DP2 IS2DO IS2EPC IS2ACID	 ISIASF/ IS2CIPA/ DP2/IS2DO/ IS2EPC nftFIPR nftDC nftCL

Code	Source code	Similar Views
ASR	ISIASF ISIBU IS2CIPA DP1 DP2 IS2DO IS2EPC IS2ACID	/ISIBU/ IS2CIPA/ DP2/IS2EPC mipAR
Theme	**Source code**	**Dissimilar Views**
ASR	ISIASF ISIBU IS2CIPA DP1 DP2 IS2DO IS2EPC IS2ACID	mipAR

Code	Source code	Similar Views
CMC/ DA	ISIASF ISIBU IS2CIPA DP1 DP2 IS2DO IS2EPC IS2ACID	ISIBU/ IS2CIPA/ DP1/ DP2/ IS2ACID/ IS2EPC mipDACMR
Theme	**Source code**	**Dissimilar Views**
CMC/ DA	ISIASF ISIBU IS2CIPA DP1 DP2 IS2DO IS2EPC IS2ACID	I/IS2DO mipDACMR

Code	Source code	Similar Views
DM	ISIASF ISIBU IS2CIPA DP1 DP2 IS2DO IS2EPC IS2ACID	DP1/ DP2/ IS2EPC/IS2DO/IS2ACID mipDPPS
Theme	**Source code**	**Dissimilar Views**
DM	ISIASF ISIBU IS2CIPA DP1 DP2 IS2DO IS2EPC IS2ACID	I/IS2DO mipDPPS

Emerging themes: Secondary Sources

code	Key themes
ssMIP	management of intellectual property
ssGOT	the globalisation of trade
ssNFT	the need for more formal training
ssHCPRIIP	high cost of policing rights and inconsistencies in the interpretation of laws

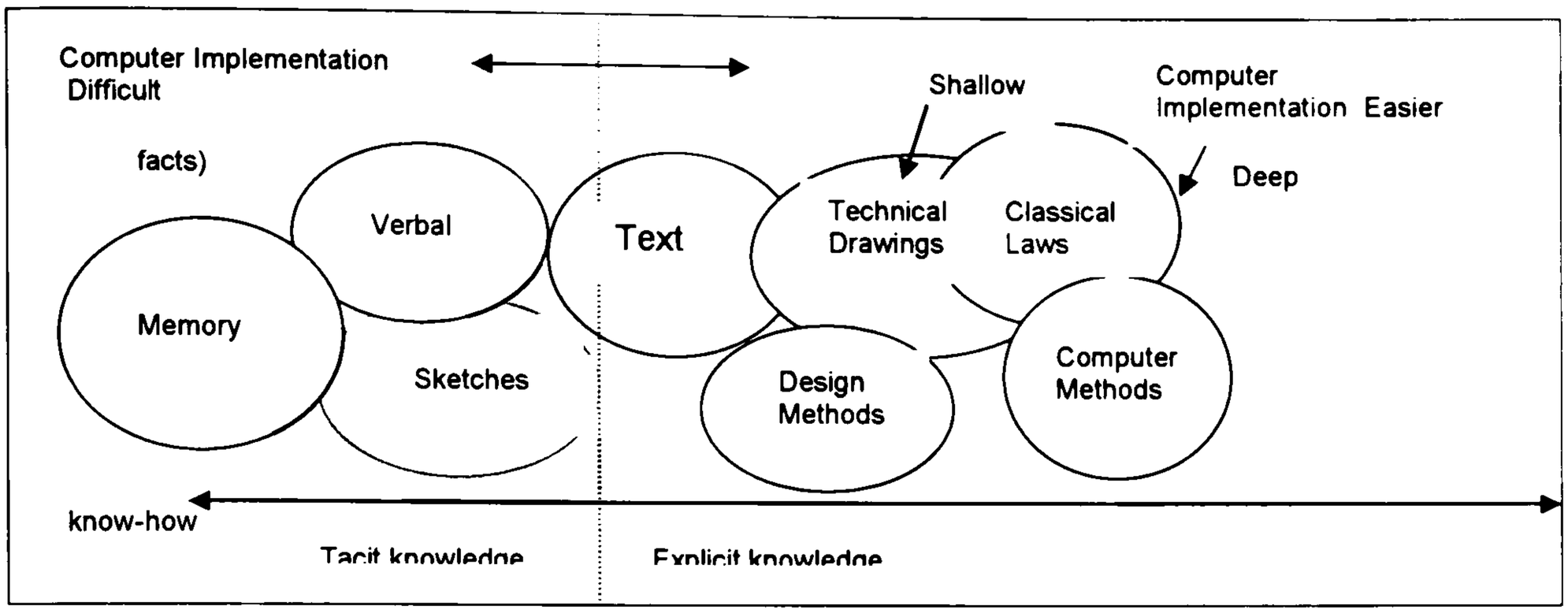
Code	Source code	Similar Views
DM	DRF1 DRF2 DRF3 DRF4	DRF2/DRF3/DRF4 ssMIP
Theme	**Source code**	**Dissimilar Views**
DM	DRF1 DRF2 DRF3 DRF4	DRF4/DRF1 ssMIP

Code	Source code	Similar Views
CMC/DA	DRF1 DRF2 DRF3 DRF4	DRF1/DRF2/DRF3/DRF4 ssGOT
Theme	**Source code**	**Dissimilar Views**
CMC/DA	DRF1 DRF2 DRF3 DRF4	DRF4 ssGOT

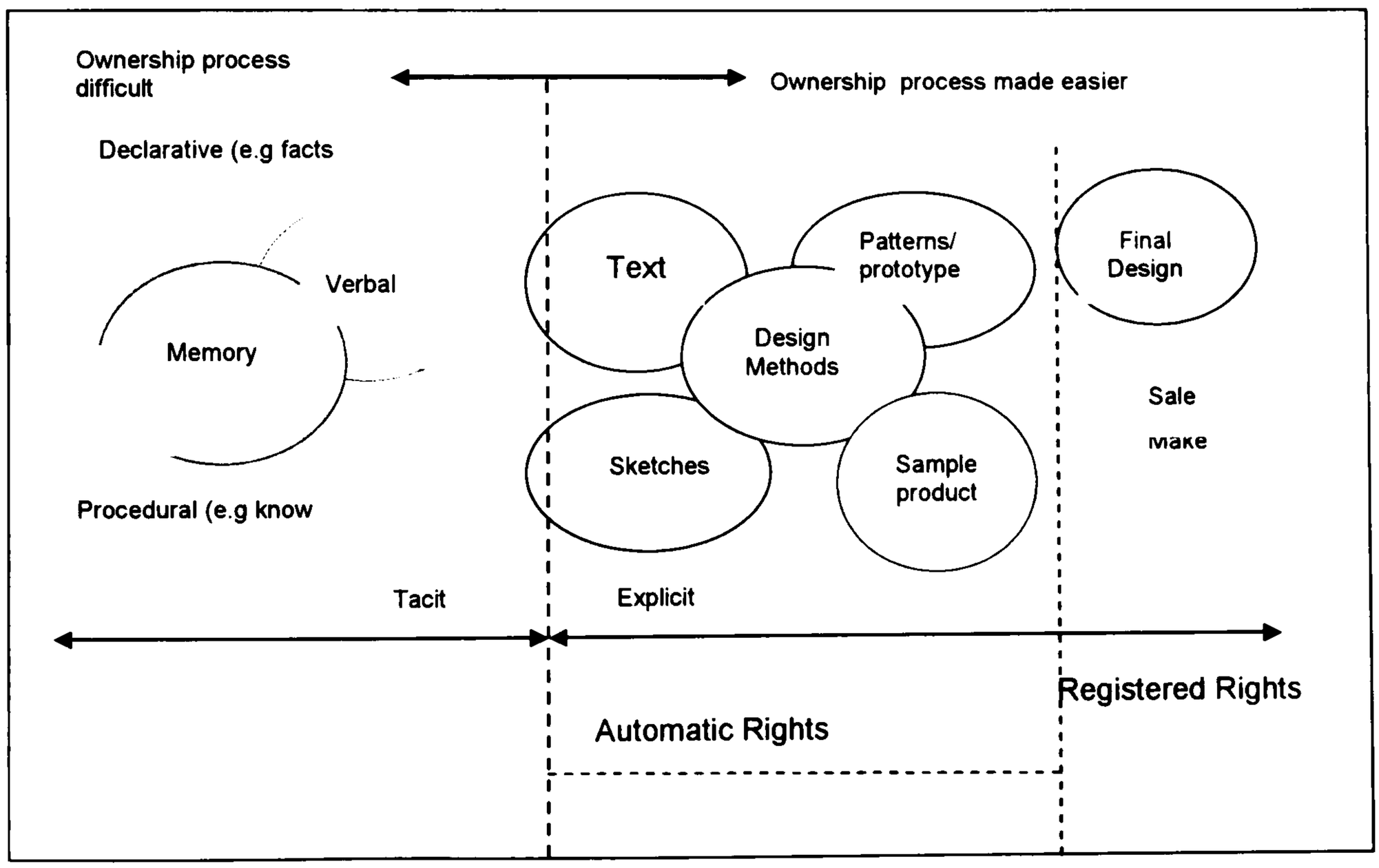
Code	Source code	Similar Views
TN	DRF1 DRF2 DRF3 DRF4	DRF1/DRF2/DRF3/DRF4 ssFT ssHCPRIIP
	Source code	**Dissimilar Views**
TN	DRF1 DRF2 DRF3 DRF4	DRF3 ssFT ssHCPRIIP

Appendix I

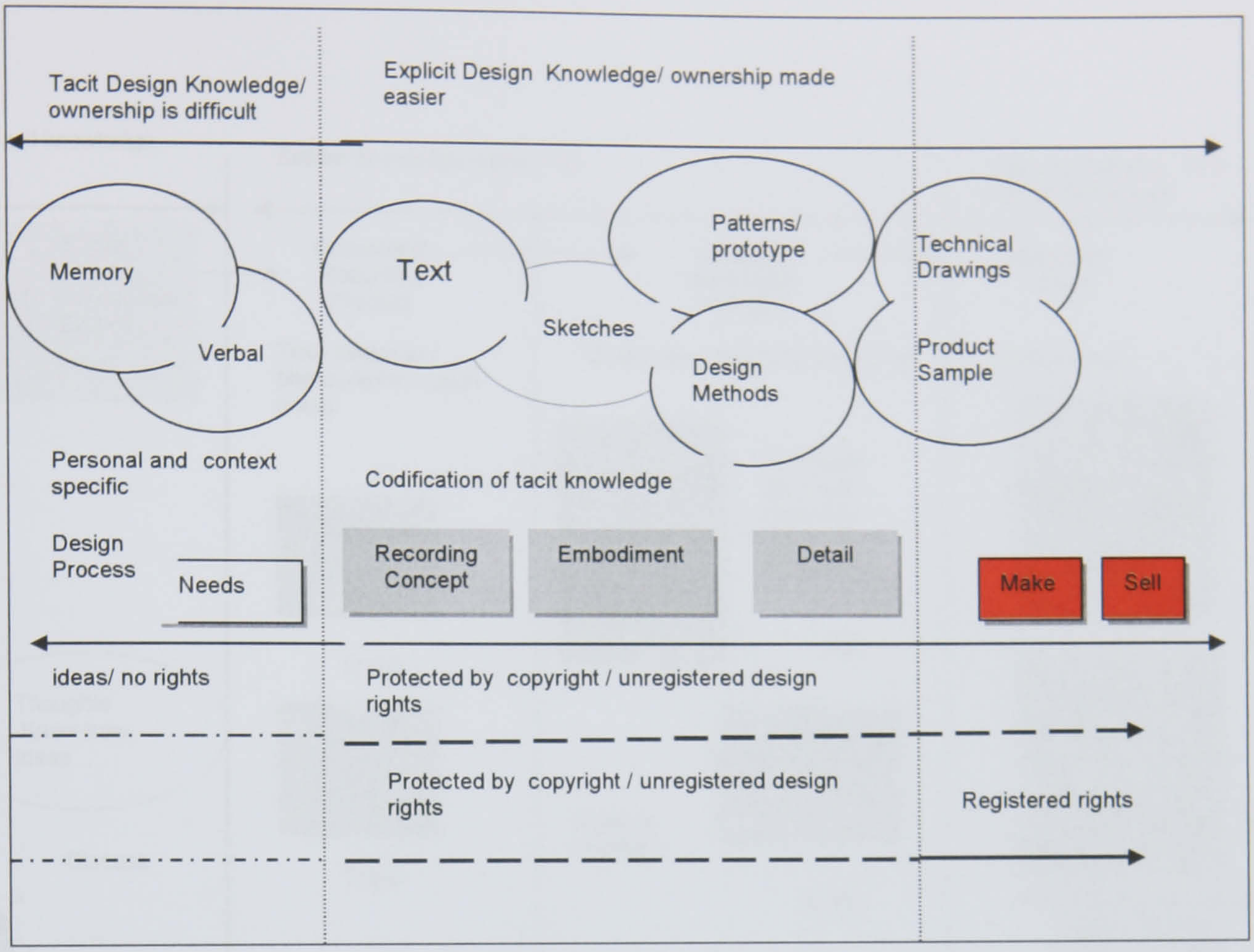
Development of model



The classification of explicit design knowledge: Adapted from Rodgers and Clarkson (1998)



Design Knowledge and the Property Cycle: Adapted from Rodgers and Clarkson (1998)



Design and the generation of property

Adapted from Rodgers and Clarkson (1998)

Tacit knowledge

Explicit knowledge mainly: 2D

Dimensional shift: 3D in Explicit knowledge

Social

To Make Ideas Explicit

Conceptual Recording Process

Text/ sketches / photographs / rough notes

Shoe story

1/ 2D

2/2D

Detailed Recording Process

Design documents for production

Technical/ Symbolic Drawings For Production

3/2D

Pattern/ Prototype

4/ 3D

Marketing Phase

Final product

5/3D

6/2D

Nike Registered Design
Date:15/05/99
Expires: 13/05/04

Thoughts
Know-how
Ideas

Discuss

Property

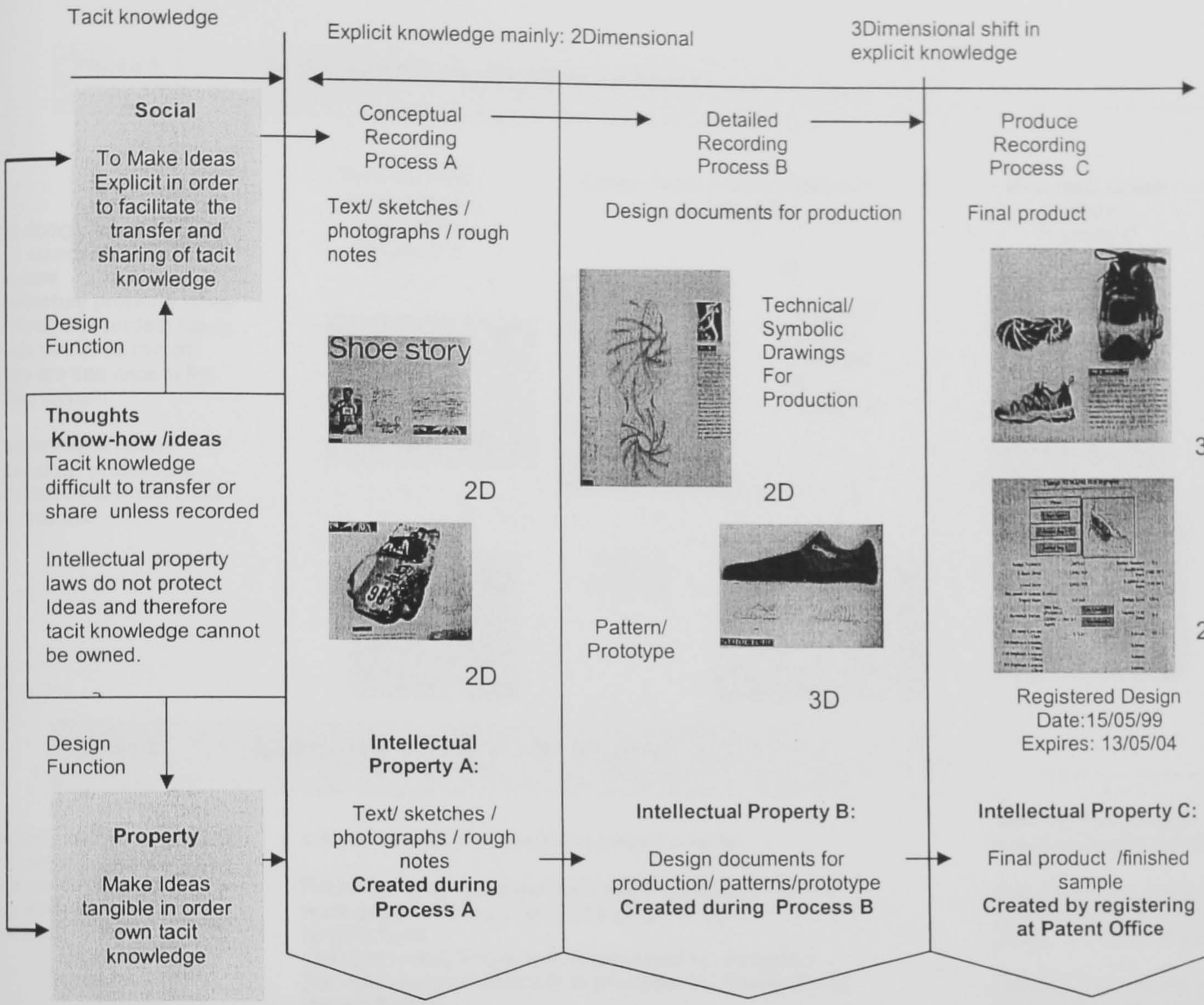
To create new property + rights

Property 1: Informal Process / property plus property rights created when ideas are first made explicit

Property 2: Informal Process / property plus property rights created when ideas are first made explicit during the detail recording process

Property 3: Formalisation of property rights acquired prior to production

Property Rights	Copyrights/ Literary and Artistic work	Unregistered Design Rights **(UDR)**	Registered Design Rights **(RDR)**
Legal Owner	**Author/ originator**	**Author/ originator**	**First to Register**
Property to Qualify for rights	Work must demonstrate **skill** in arranging information e.g Ladbroke betting slip	Work must demonstrate **innovative thinking** /aesthetic or technical	Work must demonstrate **innovative thinking** /aesthetic or technical
Rights	**Control over reproduction of original copy**	**Control over reproduction of original copy**	**Control over reproduction and distribution of final copy**
Duration of rights	Copyright/ lifetime of author plus 50-70 years after death /	3-15 years from date of creation or first marketing	5x5 years from registration date
Protection of Rights	**Retention** of original work /data management: Proof of authorship	**Retention** of original work / data management: Proof of authorship	**Registration: formalisation of UDR/ copyright:** Proof of ownership-post production



Intellectual Property Rights	Copyrights/ Literary and Artistic work	Unregistered Design Rights (UDR)	Registered Design Rights (RDR)
Legal Owner	Author/ originator	Author/ originator	First to Register
Property to Qualify for rights	**Property A** must originate from author **irrespective** of the **quality** of information	**Property B** must originate from author and aesthetic/ technical information must be new/ **novel**	**Property C** must be registered / product functions or aesthetics must be new/ **novel**
Rights	**Control over reproduction of original copy**	**Control over reproduction of original copy**	**Control over reproduction and distribution of final copy**
Duration of rights	From date of creation entire lifetime of author plus 50-70 years after death /	3-15 years from date of creation or first marketing	5x5 years from registration date
Protection of Rights	**Retention** of original work /data management: Proof of **authorship**	**Retention** of original work / data management: Proof of **authorship**	**Registration: formalisation of UDR/ copyright:** Proof of **ownership**

Phase 1 Design and the creation of new property

The design process is seen as a source of new property because
Inteilectual property rules (IPR) do not protect ideas. Ideas cannot be owned. Ideas are free once in the public domain

Intellectual property rules only protect the medium on to which ideas are recorded

Text/ sketches / photographs / rough notes:
Property A

1

2

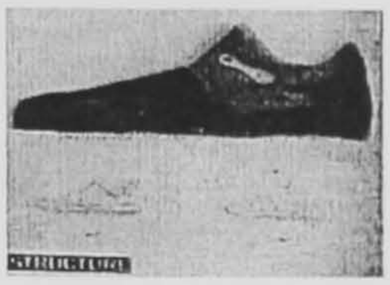
Design documents for production:
Property B

3

Technical/ Symbolic Drawings For Production

Pattern/ Prototype

4



Final designs and product:
Property C

5

6

Phase 2 Control over the use of new property

Property rights are allocated to the new property generated during Phase 1 by a informal or formal methods.

Informal process of acquiring property rights

Property rights to properties **A and B** are acquired by the mere gesture of recording or arranging information into/onto a tangible form:
The right to copy Property A: **Is protected by Copyright**
The right to copy Property B: **Is protected by Unregistered Design Rights**

The formal process of acquiring property rights

Property rights to property **C** acquired by registering final designs at Patent Office:

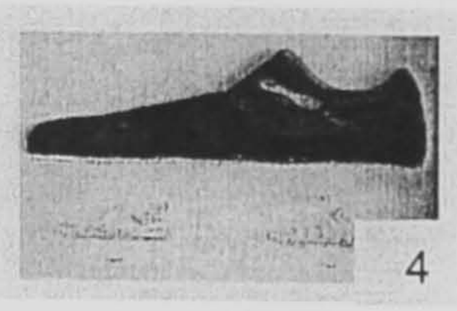
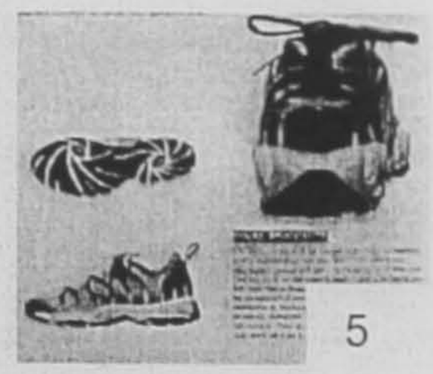
The right to reproduce and distribute Property C: Is protected by **Registered Design Rights**

Phase 3 Control over the unauthorised use of Property Rights

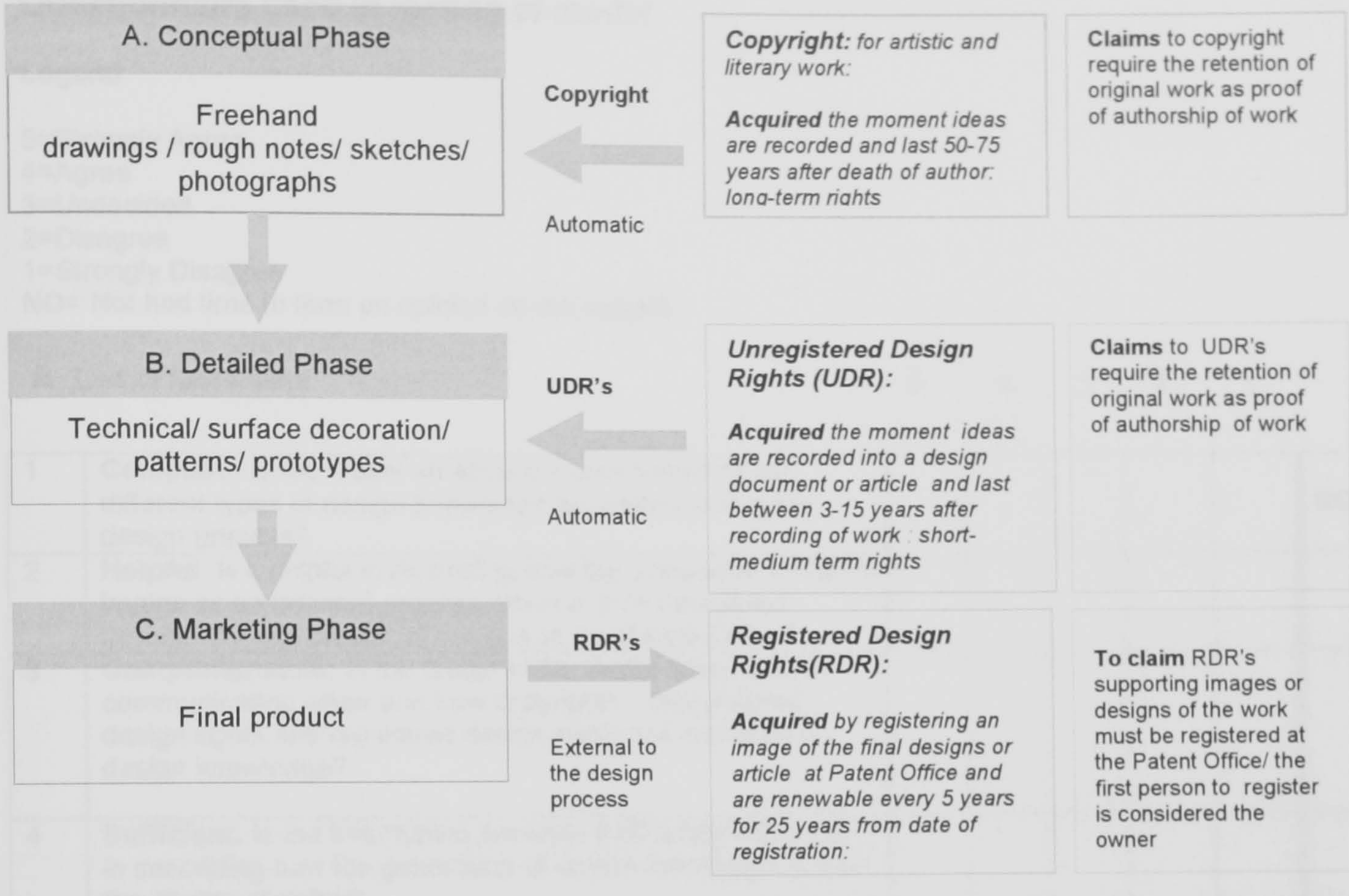
Proof of ownership of property rights is required in cases of unauthorised transfer of new property

To protect property rights to A and B: The retention of original work signed and dated by the person who originated or recorded work during phase 1 : As it is considered proof of **authorship and therefore ownership of rights**

The first to register is considered the owner of the property rights to C

Labour Process	Conceptual Phase	Detailed Design Phase	Manufactured product
Intellectual property rules do not protect ideas they protect the right to transfer work. Design is described as a **public good**. That is a good that cannot be excluded from the public place. Through observation it can be exchanged and transferred at a zero cost According to the **labour theory of creativity** when designers record new ideas they simultaneously create new property to which property rights are then attributed.	  To qualify for rights: Work must display some skill in arranging information	  To qualify for rights: work must display original thinking/ must be new or novel	  To qualify for rights: work must display original thinking/ must be new or novel
Labour creates ⇕ Rights control	Labour creates ⇕ Rights control	Labour creates ⇕ Rights control	Labour creates ⇕ Rights control
Allocation of Rights	**Property Rights A**	**Property Rights B**	**Property Rights C**
Private property rights are allocated to the new property in order to allow the owner of the property rights **control over the use** of the new design knowledge **within the public domain**	**Copyright for artistic and literary work:** **Method:** Automatically created during the recording process	**Unregistered Design Rights:** **Method:** Automatically created during the recording process	**Registered Design Rights:** **Method:** Acquired by registering final designs at Patent Office:
Policing of Rights	**Protection of Rights**	**Protection of Rights**	**Protection of Rights**
Onus is on the owner to protect their rights because implicit in every exchange of design knowledge is a property transaction	**Ensure retention** of original work as proof of authorship **Clarification over the ownership of p**roperty rights prior to transfer of work	**Ensure retention** of original work as proof of authorship **Clarification over the ownership of p**roperty rights prior to transfer of work	To extend copyright and unregistered design rights protection formal registration required at the Patent Office First to Register is the owner of the registered property rights

Model illustrating the allocation of rights to design knowledge



Appendix J

Questionnaire used in testing of model

Legend

5=Strongly Agree
4=Agree
3=Undecided
2=Disagree
1=Strongly Disagree
NO= Not had time to form an opinion on the subject

A. List of Questions

		5	4	3	2	1	
1	**Complete:** Is the model an accurate observation of the different types of design knowledge generated during the design process?						**NO**
2	**Helpful**: Is it helpful in illustrating how the acquisition of rights begins as an informal process which is then formalised through the registration of designs at the Patent Office?						
3	**Comprehensible:** Is the layout of the model successful in communicating when and how copyrights / unregistered design rights and registered design rights are allocated to design knowledge?						
4	**Sufficient:** Is the information provided sufficiently adequate in describing how the generation of design knowledge is also the source of rights?.						
5	**Necessary:** Do designers require a model on the relationship between explicit design knowledge and intellectual property rules?						
6	**Flexible:** Is it possible for the model to be adapted or expanded to other forms of design such as fashion, textile, product, architecture or multimedia design?						
7	**Novel:** Does the model provide you with new insight into the relationship between the design process and intellectual property rights compared to other guides, information or models you are familiar with?						

B. Overall impression of the model

On a scale of 1 to 10, 1 being the worst, and 10 being the best, how would you rate the model (Tick only one)

1 2 3 4 5 6 7 8 9 10

Comments

Please add any comments elaborating on your responses to Questions A and B. Positive and negative comments will be appreciated. Please note data collected from the evaluation of the model will be kept confidential. Thank you for your assistance.

Name and Title	Organisation: Post held: Date:

Appendix K

Collation of comments for thematic categories

Code	Explicit Approval
RCMCL	Respondent considers model to be clear
RCOPG	Respondent considers overall presentation to be good
RCMCO	Respondent considers model to be comprehensible
RCMVC	Respondent considers model to be very clear
RCMVI	Respondent considers model to be very informative
RCMF	Respondent considers model to be flexible
RCMH	Respondent considers model helpful
RCMND	Respondent considers model to be necessary for designers
RCMWC	Respondent considers model to be well considered
RCOPG	Respondent considers overall presentation to be good

Code	Tacit Approval
RHOBR	Respondent highlights overlap between rights
RHIRD	Respondent highlights importance of retaining drawings
RDNEOM	Respondent does not express an opinion of model.
RHIMD	Respondent highlights importance of model to designers
RHNK	Respondent highlights the need for knowledge
RHIPonIP	Respondent highlights importance of having policies on IP
RCIIFR	Respondent recommends inclusion of information of other formal rights
RRIIO	Respondent recommends inclusion of information on ownership
RHLPinD	Respondent highlights lack of policies on IP in design

Code	Negative Views
RDCIonDRS	Respondent does not consider information on design rights sufficient
RDCIPN	Respondent does not consider information provided to be novel
RDNEOM	Respondent does not express an opinion of model.
RCMMIN	Respondent considers model does not meet information needs
RDIN	Request for different information needs
RRCN	Respondent recommends change of name
RCIIR	Respondent contests importance of informal rights
RQVIM	Respondent questions validity of registered design rights in protecting product functions

Collation of Legal Profession: Positive and Negative Comments on Recurring Themes

Themes	Content of Model (CM)	Copyrights ©	Employment Contracts (EC)
LP1	Explicit Approval **RCMH** **RCOPG** **RCMND** **RCMF** Critical **RDIN**		Tacit Approval **RHIMD**
LP2	Explicit Approval **RCOPG** **RCMVC** Critical **RDCIPN**		

Themes	Existing Policies (EP)	Knowledge Needs (KN)	Registered Design Rights(RDR)
LP1		Tacit Approval **RCIIFR** **RRIIO**	Critical **RDCIonDRS**
LP2			Critical **RDIN**

Collation of Design Agents: Positive and Negative Comments on Recurring Themes

Themes	Content of Model (CM)	copyrights (CR)	Employment Contracts (EC)
DA1		Tacit Approval **RCMH**	Tacit Approval **RHIMD**
DA2	Explicit Approval **RCMH**	Critical **RCIIR**	

Themes	Existing Policies (EP)	Knowledge Needs (KN)	Registered Design Rights(RDR)
DA1	Tacit Approval **RCMH**	Tacit Approval **RCIIFR**	
DA2			Critical **RDCIonDRS**

Collation of Designers: Positive and Negative Comments on Recurring Themes

Themes	Content of Model (CM)	Copyrights ©	Employment Contracts (EC)
D1	Explicit Approval RCMVCL RCMVI RCMVC		
D2			Tacit Approval RHIMD RHNK
D3	Explicit Approval/ RCMCO RCMVI RCMWC		
D4			

Themes	Existing Policies (EP)	Knowledge Needs (KN)	Registered Design Rights (RDR)
D1			
D2	Tacit Approval RCMH	Tacit Approval RHIMD RHNK RCMVI	
D3			
D4		Critical RDCIPN RCMMIN RQVIM	

Glossary of Terms

Copyrights	Automatic rights that protect any two dimensional images and certain three dimensional designs from unauthorised exploitation
Design Rights	All the property rights applicable to designs (registered design rights, unregistered design rights and copyrights)
Intellectual Property	Term used to describe the ownership of copyrights, registered design rights, unregistered design right, patents, trade marks, image rights and merchandising rights.
Intellectual Property Rules	Term used to describe all the laws pertaining to intellectual property, such as copyright laws and registered design laws
Licensing Rights	Permitting a third party to exploit design rights within a certain period of time, usually for a Royalty. When the license expires the design rights revert to the original owner
Patents	Legal rights that protect inventions, such as the composition or manufacture of a substance, article or apparatus
Registered Community Design Rights	Legal rights that protect the appearance of a product – this includes shape, contours, lines colours, texture of the product, ornamentation, trade dress, symbols and typefaces through out the European Union.
Registered Design Rights	Legal rights that protect the appearance of a product – this includes shape, contours, lines colours, texture of the product, ornamentation, trade dress, symbols and typefaces and are applicable only within the United Kingdom
Trade Marks	Legal rights that protect any sign which is capable of graphic representation, personal names, the shape of goods or their packaging

Unregistered Community Design Rights	Automatic rights that protect the appearance of a product – this includes shape, contours, lines colours, texture of the product, ornamentation, trade dress, symbols and typefaces through out the European Union
Unregistered Design Rights	Automatic rights that protect mostly three-dimensional articles, including furniture, interior designs, lighting designs etc, and are applicable only within the United Kingdom